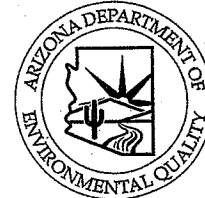


Douglas A. Ducey  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

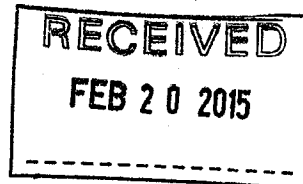


Henry R. Darwin  
Director

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

February 5, 2015

David F. Rhoads  
Freeport-McMoRan Morenci Inc.  
4521 U. S. Highway 191  
Morenci, AZ 85540



**COPY**

Dear Mr. Rhoads:

**Subject:** Air Quality Control Permit No. 57883 (As Amended by Minor Revision No. 61578)  
Place ID: 2512

The Arizona Department of Environmental Quality has received payment of the fee requested. Enclosed is a revised operating permit for the referenced facility. In accordance with Arizona Revised Statutes, §49-430, this permit should be readily available at all times on the premises. Please continue to keep the Department informed of any changes that would affect your air pollution status during this period.

The terms of the permit relating to the above referenced permit revision constitutes an appealable agency action under A.R.S. § 41-1092.03(B). You must file a written Request for Hearing or Notice of Appeal within **30 days** of your receipt of this Notice. A Request for Hearing or Notice of Appeal is filed when it is received by ADEQ's Hearing Administrator as follows:

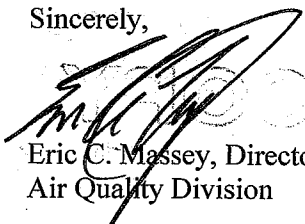
Hearing Administrator  
Office of Administrative Counsel  
Arizona Department of Environmental Quality  
1110 W. Washington Street  
Phoenix, AZ 85007

The Request for Hearing or Notice of Appeal shall identify the party, the party's address, the agency and the action being appealed and shall contain a concise statement of the reasons for the appeal. Upon proper filing of a Request for Hearing or Notice of Appeal, ADEQ will serve a Notice of Hearing on all parties to the appeal. If you file a timely Request for Hearing or Notice of Appeal you have a right to request an informal settlement conference with ADEQ under A.R.S. § 41-1092.06. This request must be made in writing no later than **20 days** before a scheduled hearing and must be filed with the Hearing Administrator at the above address.

You are advised that this minor permit revision is a legally enforceable document. If your facility fails to comply with the provisions contained in this minor permit revision, you will be subject to enforcement action and could incur civil fines of up to ten thousand dollars per day under A.R.S. §49-463 and/or be subject to criminal penalties in accordance with A.R.S. §49-464.

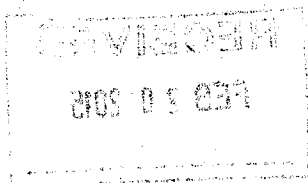
If you have any questions, please contact the Permits Section of the Air Quality Division at (602) 771-2358.

Sincerely,



Eric C. Massey, Director  
Air Quality Division

ECM:PKT



Enclosures(2): Operating Permit No. 57883 (As Amended by Minor Revision No. 61578)  
Technical Support Document (TSD)

Copy to: EPA Region IX

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

1110 W. Washington Street Phoenix, AZ 85007 · Phone: (602) 771-2338

AIR QUALITY CONTROL PERMIT

(As required by Title 49, Chapter 3, Article 2, Section 49-426, Arizona Revised Statutes)

*This air quality control permit does not relieve applicant of responsibility for meeting all air pollution regulations*

1. PERMIT TO BE ISSUED TO (Business license name of organization that is to receive permit) \_\_\_\_\_

**Freeport-McMoRan Morenci Inc.**

2. MAILING ADDRESS **4521 U. S. Highway 191**

**Morenci, AZ 85540**

3. ORIGINAL EQUIPMENT LOCATION/ADDRES **4521 U. S. Highway 191**

**Morenci, Greenlee County, AZ 85540**

4. FACILITIES OR EQUIPMENT DESCRIPTION **Morenci Mine**

5. THIS PERMIT ISSUED SUBJECT TO THE FOLLOWING ***Conditions as described in attached revised permit***

6. ADEQ PERMIT NUMBER **57883 (As Amended by Minor Revision# 61578)** PERMIT CLASS **I**

REVISED PERMIT ISSUED THIS **5th** DAY OF **February**, **2015**

  
SIGNATURE

**Eric C. Massey, Director, Air Quality Division**  
TITLE



**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY CLASS I PERMIT**

**PERMITTEE:** FREEPORT- MCMORAN MORENCI INC.  
**FACILITY:** MORENCI MINE  
**PERMIT #:** 57883 (As Amended by Minor Revision #61578)  
**DATE ISSUED:** February 5, 2015  
**EXPIRY DATE:** January 30, 2019

---

**SUMMARY**

This operating permit renewal is issued to Freeport-McMoRan Morenci Inc. (FMMI) the Permittee, for the operation of the Morenci mine. The facility is located at 4521 U.S. Highway 191 in Morenci, Greenlee County, Arizona. FMMI operates an open pit copper mine along with associated ore processing and copper extraction facilities. Copper is the primary product produced by utilizing the conventional milling & froth flotation process that produces copper concentrate. The leach process utilizes the solvent extraction and electrowinning process to produce copper. Other associated activities include power generation and slaked lime production at the Morenci Mine.

FMMI is a major source for purposes of Title V because the potential to emit of particulate matter (PM) and nitrogen oxides (NO<sub>x</sub>) are greater than the major source threshold of 100 tons per year. However, the facility has accepted voluntary emissions and operating restrictions to stay below the Prevention of Significant Deterioration (PSD) program threshold of 250 tons per year for PM, particulate matter below 10-micron size (PM<sub>10</sub>), and NO<sub>x</sub>.

All definitions, terms, and conditions used in this permit conform to those in the Arizona Administrative Code R18-2-101 et. seq. (A.A.C.) and 40 Code of Federal Regulations (CFR), except as otherwise defined in this permit. Unless noted otherwise, references cited in the permit conditions refer to the A.A.C. All material permit conditions have been identified within the permit by an underline and italics. All terms and conditions in this permit are enforceable by the Administrator of the U.S. Environmental Protection Agency.

This permit is issued in accordance with Title V of the Clean Air Act, and Title 49, Chapter 3 of the Arizona Revised Statutes.

**Minor Permit Revision #61578**

This MPR authorizes Freeport- McMoRan Morenci Inc. (FMMI) to add three emergency generators to Operating Permit #57883. This revision also adds the applicable requirements from A.A.C. R18-2-722 applicable to portions of crushing and screening plant. This revision also corrects the equipment list in Attachment "C" arising out of formatting issues while issuing Minor Revision #60254.

The increases in emissions due to the addition of three emergency engines are below the significant levels for all the criteria pollutants. This change meets all the requirements for a MPR outlined in A.A.C. R.18-2-319.A.

The permit shield shall not apply to the equipment added under MPR #61578.



## TABLE OF CONTENTS

ATTACHMENT "A": GENERAL PROVISIONS.....	4
I. PERMIT EXPIRATION AND RENEWAL .....	4
II. COMPLIANCE WITH PERMIT CONDITIONS .....	4
III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE .....	4
IV. POSTING OF PERMIT .....	5
V. FEE PAYMENT .....	5
VI. ANNUAL EMISSION INVENTORY QUESTIONNAIRE.....	5
VII. COMPLIANCE CERTIFICATION.....	5
VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS.....	6
IX. INSPECTION AND ENTRY.....	6
X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD .....	7
XI. ACCIDENTAL RELEASE PROGRAM.....	7
XII. EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCY REPORTING .....	7
XIII. RECORD KEEPING REQUIREMENTS.....	11
XIV. REPORTING REQUIREMENTS.....	12
XV. DUTY TO PROVIDE INFORMATION .....	12
XVI. PERMIT AMENDMENT OR REVISION .....	12
XVII. FACILITY CHANGE WITHOUT A PERMIT REVISION .....	13
XVIII. TESTING REQUIREMENTS .....	14
XIX. PROPERTY RIGHTS .....	15
XX. SEVERABILITY CLAUSE.....	15
XXI. PERMIT SHIELD .....	15
XXII. PROTECTION OF STRATOSPHERIC OZONE .....	15
XXIII. APPLICABILITY OF NSPS/NESHAP GENERAL PROVISIONS.....	15
ATTACHMENT "B": SPECIFIC CONDITIONS.....	17
I. FACILITY-WIDE REQUIREMENTS .....	17
II. CRUSHING OPERATIONS IN THE MINE .....	20
III. MATERIAL TRANSFER OPERATIONS .....	26
IV. CONCENTRATOR OPERATIONS.....	31
V. METCALF COMBINED CYCLE POWER PLANT .....	42
VI. LIME SLAKING PLANTS .....	49
VII. SOLUTION EXTRACTION/ELECTROWINNING (SX/EW) PROCESS SYSTEMS .....	50
VIII. CONCENTRATE LEACH PLANT (CLP) AND LABORATORY ACTIVITIES.....	55
IX. EMERGENCY GENERATOR.....	59
X. STORAGE TANKS.....	64
XI. CRUSHING AND SCREENING PLANT.....	68
XII. GRIZZLY OPERATIONS REQUIREMENTS .....	69
XIII. CONCRETE BATCH PLANT .....	71
XIV. FUGITIVE DUST REQUIREMENTS .....	73
XV. MOBILE SOURCE REQUIREMENTS.....	76
XVI. OTHER PERIODIC ACTIVITIES .....	77
XVII. REQUIREMENTS FOR ALTERNATE OPERATING SCENARIOS FOR CURRENT OPERATIONS .....	80
XVIII. EMERGENCY PROPANE FIRED ENGINE .....	90
ATTACHMENT "C": EQUIPMENT LIST.....	92

**ATTACHMENT "A": GENERAL PROVISIONS**

**Air Quality Control Permit No. 57883**

**For**

***Freeport-McMoRan Morenci Inc.***

**I. PERMIT EXPIRATION AND RENEWAL**

[ARS § 49-426.F, A.A.C. R18-2-304.C.2, and -306.A.1]

- A. This permit is valid for a period of five years from the date of issuance.
- B. The Permittee shall submit an application for renewal of this permit at least 6 months, but not more than 18 months, prior to the date of permit expiration.

**II. COMPLIANCE WITH PERMIT CONDITIONS**

[A.A.C. R18-2-306.A.8.a and b]

- A. The Permittee shall comply with all conditions of this permit including all applicable requirements of the Arizona Revised Statutes (A.R.S.) Title 49, Chapter 3, and the and air quality rules under Title 18, Chapter 2 of the Arizona Administrative Code. Any noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act.
- B. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

**III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE**

[A.A.C. R18-2-306.A.8.c, -321.A.1, and -321.A.2]

- A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- B. The permit shall be reopened and revised under any of the following circumstances
  1. Additional applicable requirements under the Clean Air Act become applicable to the Class I source. Such a reopening shall only occur if there are three or more years remaining in the permit term. The reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless an application for renewal has been submitted pursuant to A.A.C. R18-2-322.B. Any permit revision required pursuant to this subparagraph shall comply with the provisions in A.A.C. R18-2-322 for permit renewal and shall reset the five-year permit term.
  2. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit.
  3. The Director or the Administrator determines that the permit contains a material

mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.

4. The Director or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.

- C. Proceedings to reopen and reissue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall, except for reopenings under Condition III.B.1 above, affect only those parts of the permit for which cause to reopen exists. Such reopenings shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in Condition III.B.1 above shall not result in a resetting of the five-year permit term.

#### **IV. POSTING OF PERMIT**

[A.A.C. R18-2-315]

- A. The Permittee shall post this permit or a certificate of permit issuance where the facility is located in such a manner as to be clearly visible and accessible. All equipment covered by this permit shall be clearly marked with one of the following:

1. Current permit number; or
2. Serial number or other equipment ID number that is also listed in the permit to identify that piece of equipment.

- B. A copy of the complete permit shall be kept on site.

#### **V. FEE PAYMENT**

[A.A.C. R18-2-306.A.9 and -326]

The Permittee shall pay fees to the Director pursuant to ARS § 49-426(E) and A.A.C. R18-2-326.

#### **VI. ANNUAL EMISSION INVENTORY QUESTIONNAIRE**

[A.A.C. R18-2-327.A and B]

- A. The Permittee shall complete and submit to the Director an annual emissions inventory questionnaire. The questionnaire is due by March 31st or ninety days after the Director makes the inventory form available each year, whichever occurs later, and shall include emission information for the previous calendar year.
- B. The questionnaire shall be on a form provided by the Director and shall include the information required by A.A.C. R18-2-327.

#### **VII. COMPLIANCE CERTIFICATION**

[A.A.C. R18-2-309.2.a, -309.2.c-d, and -309.5.d]

- A. The Permittee shall submit a compliance certification to the Director semiannually, which describes the compliance status of the source with respect to each permit condition. The first certification shall be submitted no later than May 15<sup>th</sup>, and shall report the compliance status of the source during the period between October 1<sup>st</sup> of the previous year and March 31<sup>st</sup> of the current year. The second certification shall be submitted no later than November 15<sup>th</sup>, and shall report the compliance status of the source during the period between April 1<sup>st</sup> and September 30<sup>th</sup> of the current year.
- B. The compliance certifications shall include the following:

1. Identification of each term or condition of the permit that is the basis of the certification;
  2. Identification of the methods or other means used by the Permittee for determining the compliance status with each term and condition during the certification period,
  3. The status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the methods or means designated in Condition VII.A.2 above. The certifications shall identify each deviation and take it into account for consideration in the compliance certification;
  4. For emission units subject to 40 CFR Part 64, the certification shall also identify as possible exceptions to compliance any period during which compliance is required and in which an excursion or exceedance defined under 40 CFR Part 64 occurred;
  5. All instances of deviations from permit requirements reported pursuant to Condition XII.B of this Attachment; and
  6. Other facts the Director may require to determine the compliance status of the source.
- C. A copy of all compliance certifications shall also be submitted to the EPA Administrator.
- D. If any outstanding compliance schedule exists, a progress report shall be submitted with the semi-annual compliance certifications required in Condition VII.A above.

#### **VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS**

[A.A.C. R18-2-304.H]

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

#### **IX. INSPECTION AND ENTRY**

[A.A.C. R18-2-309.4]

Upon presentation of proper credentials, the Permittee shall allow the Director or the authorized representative of the Director to:

- A. Enter upon the Permittee's premises where a source is located, emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;
- B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;
- C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- D. Sample or monitor, at reasonable times, substances or parameters for the purpose of

assuring compliance with the permit or other applicable requirements; and

E. Record any inspection by use of written, electronic, magnetic and photographic media.

**X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD**

[A.A.C. R18-2-304.C]

If this source becomes subject to a standard promulgated by the Administrator pursuant to Section 112(d) of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.

**XI. ACCIDENTAL RELEASE PROGRAM**

[40 CFR Part 68]

If this source becomes subject to the provisions of 40 CFR Part 68, then the Permittee shall comply with these provisions according to the time line specified in 40 CFR Part 68.

**XII. EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCY REPORTING**

**A. Excess Emissions Reporting**

[A.A.C. R18-2-310.01.A and -310.01.B]

1. Excess emissions shall be reported as follows:

a. The Permittee shall report to the Director any emissions in excess of the limits established by this permit. Such report shall be in two parts as specified below:

(1) Notification by telephone or facsimile within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information from Condition XII.A.1.b below.

(2) Detailed written notification by submission of an excess emissions report within 72 hours of the notification pursuant to Condition XII.A.1.a.(1) above.

b. The report shall contain the following information:

(1) Identity of each stack or other emission point where the excess emissions occurred;

(2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;

(3) Date, time and duration, or expected duration, of the excess emissions;

(4) Identity of the equipment from which the excess emissions emanated;

- (5) Nature and cause of such emissions;
  - (6) If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions; and
  - (7) Steps taken to limit the excess emissions. If the excess emissions resulted from start-up or malfunction, the report shall contain a list of the steps taken to comply with the permit procedures.
2. In the case of continuous or recurring excess emissions, the notification requirements of this section shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period, or changes in the nature of the emissions as originally reported, shall require additional notification pursuant to Condition XII.A.1 above.

[A.A.C. R18-2-310.01.C]

#### **B. Permit Deviations Reporting**

[A.A.C. R18-2-306.A.5.b]

The Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Prompt reporting shall mean that the report was submitted to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to an emergency or within two working days of the time when the owner or operator first learned of the occurrence of a deviation from a permit requirement.

#### **C. Emergency Provision**

[A.A.C. R18-2-306.E]

1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, that require immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.
2. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if Condition XII.C.3 is met.
3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - a. An emergency occurred and that the Permittee can identify the cause(s) of the emergency;
  - b. The permitted facility was being properly operated at the time;

- c. During the period of the emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
  - d. The Permittee submitted notice of the emergency to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective action taken.
- 4. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
  - 5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

**D. Compliance Schedule**

[ARS § 49-426.I.5]

For any excess emission or permit deviation that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Director within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or conditions that have been violated.

**E. Affirmative Defenses for Excess Emissions due to Malfunctions, Startup, and Shutdown**

[A.A.C. R18-2-310]

**1. Applicability**

This rule establishes affirmative defenses for certain emissions in excess of an emission standard or limitation and applies to all emission standards or limitations except for standards or limitations:

- a. Promulgated pursuant to Sections 111 or 112 of the Act;
- b. Promulgated pursuant to Titles IV or VI of the Clean Air Act;
- c. Contained in any Prevention of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the U.S. EPA;
- d. Contained in A.A.C. R18-2-715.F; or
- e. Included in a permit to meet the requirements of A.A.C. R18-2-406.A.5.

**2. Affirmative Defense for Malfunctions**

Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. When emissions in excess of an applicable emission limitation are due to a malfunction, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

- a. The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution control equipment beyond the reasonable control of the Permittee;
- b. The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
- c. If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the Permittee satisfactorily demonstrated that the measures were impracticable;
- d. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;
- e. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;
- f. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;
- g. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source;
- h. The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by better operations and maintenance practices;
- i. All emissions monitoring systems were kept in operation if at all practicable; and
- j. The Permittee's actions in response to the excess emissions were documented by contemporaneous records

3. Affirmative Defense for Startup and Shutdown

- a. Except as provided in Condition XII.E.3.b below, and unless otherwise provided for in the applicable requirement, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. When emissions in excess of an applicable emission limitation are due to startup and shutdown, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

- (1) The excess emissions could not have been prevented through careful and prudent planning and design;

- (2) If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution control equipment, production equipment, or other property;
  - (3) The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
  - (4) The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;
  - (5) All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;
  - (6) During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source;
  - (7) All emissions monitoring systems were kept in operation if at all practicable; and
  - (8) Contemporaneous records documented the Permittee's actions in response to the excess emissions.
- b. If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to Condition XII.E.2 above.
4. Affirmative Defense for Malfunctions during Scheduled Maintenance
- If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to Condition XII.E.2 above.

5. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under Condition XII.E.2 or XII.E.3 above, the Permittee shall demonstrate, through submission of the data and information required by Condition XII.E and A.A.C. R18-2-310.01, that all reasonable and practicable measures within the Permittee's control were implemented to prevent the occurrence of the excess emissions.

### **XIII. RECORD KEEPING REQUIREMENTS**

[A.A.C. R18-2-306.A.4]

- A. The Permittee shall keep records of all required monitoring information including, but not limited to, the following:
1. The date, place as defined in the permit, and time of sampling or measurements;
  2. The date(s) analyses were performed;

3. The name of the company or entity that performed the analyses;
  4. A description of the analytical techniques or methods used;
  5. The results of such analyses; and
  6. The operating conditions as existing at the time of sampling or measurement.
- B.** The Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings or other data recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.
- C.** All required records shall be maintained either in an unchangeable electronic format or in a handwritten logbook utilizing indelible ink.

#### **XIV. REPORTING REQUIREMENTS**

[A.A.C. R18-2-306.A.5.a]

The Permittee shall submit the following reports:

- A.** Compliance certifications in accordance with Section VII of Attachment "A".
- B.** Excess emission; permit deviation, and emergency reports in accordance with Section XII of Attachment "A".
- C.** Other reports required by any condition of Attachment "B".

#### **XV. DUTY TO PROVIDE INFORMATION**

[A.A.C. R18-2-304.G and -306.A.8.e]

- A.** The Permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Director copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee shall furnish an additional copy of such records directly to the Administrator along with a claim of confidentiality.
- B.** If the Permittee has failed to submit any relevant facts or has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

#### **XVI. PERMIT AMENDMENT OR REVISION**

[A.A.C. R18-2-318, -319, and -320]

The Permittee shall apply for a permit amendment or revision for changes to the facility which do not qualify for a facility change without revision under Section XVII, as follows:

- A.** Administrative Permit Amendment (A.A.C. R18-2-318);
- B.** Minor Permit Revision (A.A.C. R18-2-319); and

**C. Significant Permit Revision (A.A.C. R18-2-320)**

The applicability and requirements for such action are defined in the above referenced regulations.

**XVII. FACILITY CHANGE WITHOUT A PERMIT REVISION**

[A.A.C. R18-2-317]

- A.** The Permittee may make changes at the permitted source without a permit revision if all of the following apply:
1. The changes are not modifications under any provision of Title I of the Act or under ARS § 49-401.01(24);
  2. The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions;
  3. The changes do not violate any applicable requirements or trigger any additional applicable requirements;
  4. The changes satisfy all requirements for a minor permit revision under A.A.C. R18-2-319.A;
  5. The changes do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements; and
  6. The changes do not constitute a minor NSR modification.
- B.** The substitution of an item of process or pollution control equipment for an identical or substantially similar item of process or pollution control equipment shall qualify as a change that does not require a permit revision, if it meets all of the requirements of Conditions XVII.A and XVII.C of this Attachment.
- C.** For each change under Conditions XVII.A and XVII.B above, a written notice by certified mail or hand delivery shall be received by the Director and the Administrator a minimum of 7 working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided less than 7 working days in advance of the change, but must be provided as far in advance of the change, as possible or, if advance notification is not practicable, as soon after the change as possible.
- D.** Each notification shall include:
1. When the proposed change will occur;
  2. A description of the change;
  3. Any change in emissions of regulated air pollutants; and
  4. Any permit term or condition that is no longer applicable as a result of the change.
- E.** The permit shield described in A.A.C. R18-2-325 shall not apply to any change made under this Section.

- F. Except as otherwise provided for in the permit, making a change from one alternative operating scenario to another as provided under A.A.C. R18-2-306.A.11 shall not require any prior notice under this Section.
- G. Notwithstanding any other part of this Section, the Director may require a permit to be revised for any change that, when considered together with any other changes submitted by the same source under this Section over the term of the permit, do not satisfy Condition XVII.A above.

## **XVIII. TESTING REQUIREMENTS**

[A.A.C. R18-2-312]

- A. The Permittee shall conduct performance tests as specified in the permit and at such other times as may be required by the Director.

- B. Operational Conditions during Testing**

Tests shall be conducted during operation at the maximum possible capacity of each unit under representative operational conditions unless other conditions are required by the applicable test method or in this permit. With prior written approval from the Director, testing may be performed at a lower rate. Operations during periods of start-up, shutdown, and malfunction (as defined in A.A.C. R18-2-101) shall not constitute representative operational conditions unless otherwise specified in the applicable standard.

- C. Tests shall be conducted and data reduced in accordance with the test methods and procedures contained in the Arizona Testing Manual unless modified by the Director pursuant to A.A.C. R18-2-312.B.

- D. Test Plan**

At least 14 calendar days prior to performing a test, the Permittee shall submit a test plan to the Director in accordance with A.A.C. R18-2-312.B and the Arizona Testing Manual. This test plan must include the following:

1. Test duration;
2. Test location(s);
3. Test method(s); and
4. Source operation and other parameters that may affect test results.

- E. Stack Sampling Facilities**

The Permittee shall provide, or cause to be provided, performance testing facilities as follows:

1. Sampling ports adequate for test methods applicable to the facility;
2. Safe sampling platform(s);
3. Safe access to sampling platform(s); and
4. Utilities for sampling and testing equipment.

## **F. Interpretation of Final Results**

Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs is required to be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control, compliance may, upon the Director's approval, be determined using the arithmetic mean of the results of the other two runs. If the Director or the Director's designee is present, tests may only be stopped with the Director's or such designee's approval. If the Director or the Director's designee is not present, tests may only be stopped for good cause. Good cause includes: forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation, which demonstrates good cause, must be submitted.

## **G. Report of Final Test Results**

A written report of the results of all performance tests shall be submitted to the Director within 30 days after the test is performed. The report shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312.A.

## **XIX. PROPERTY RIGHTS**

[A.A.C. R18-2-306.A.8.d]

This permit does not convey any property rights of any sort, or any exclusive privilege.

## **XX. SEVERABILITY CLAUSE**

[A.A.C. R18-2-306.A.7]

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force.

## **XXI. PERMIT SHIELD**

[A.A.C. R18-2-325]

Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements identified in the portions of this permit subtitled "Permit Shield". The permit shield shall not apply to minor revisions pursuant to Condition XVI.B of this Attachment and any facility changes without a permit revision pursuant to Section XVII of this Attachment.

## **XXII. PROTECTION OF STRATOSPHERIC OZONE**

[40 CFR Part 82]

If this source becomes subject to the provisions of 40 CFR Part 82, then the Permittee shall comply with these provisions accordingly.

## **XXIII. APPLICABILITY OF NSPS/NESHAP GENERAL PROVISIONS**

[40 CFR Part 60, Part 63]

For all equipment subject to a New Source Performance Standard, the Permittee shall comply

with all applicable requirements contained in Subpart A of Title 40, Part 60 and Part 63 of the Code of Federal Regulations.

## **ATTACHMENT "B": SPECIFIC CONDITIONS**

**Air Quality Control Permit No. 57883 for**

***Freeport-McMoRan Morenci Inc.***

### **I. FACILITY-WIDE REQUIREMENTS**

#### **A. Operating Limitations**

1. The Permittee shall have on site or on call an employee or contractor who is certified in EPA Reference Method 9.

[A.A.C. R18-2-306.A.2]

2. The Permittee shall operate all air pollution control and fuel combustion equipment identified in Attachment "C" in accordance with the vendor-supplied operations and maintenance instructions. If vendor-supplied operations and maintenance instructions are not available, the Permittee shall prepare an Operation and Maintenance Plan, which provides adequate information to properly operate and maintain the equipment in good working order. In the absence of vendor-supplied operations and maintenance instructions, the Permittee shall operate the equipment in accordance with the Operation and Maintenance Plan prepared by the Permittee.

[A.A.C. R18-2-306.A.2]

#### **B. Monitoring, Recordkeeping and Reporting Requirements**

1. The Permittee shall maintain, on-site, records of the manufacturer's specifications or Operation and Maintenance Plan for minimizing emissions for all air pollution control and fuel combustion equipment listed in Attachment "C".

[A.A.C. R18-2-306.A.3.c]

2. The Permittee shall submit reports of all monitoring activities required in Attachment "B" along with the compliance certifications required by Section VII of Attachment "A." All instances of deviations from the requirements of the Permit shall be clearly identified in the reports.

[A.A.C. R18-2-306.A.5]

#### **C. General Requirements for Emission Units subject to Compliance Assurance Monitoring (CAM)**

1. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the Permittee shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the emission points are operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

[40 CFR 64.7(c)]

2. Response to Excursions

- a. Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emission point (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown, or malfunction, and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action, or any necessary follow-up actions to return operations to within the indicator range, designated condition, or below applicable emission limitation or standard, as applicable.

[40 CFR 64.7(d)(1)]

- b. Determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include but is not limited to, monitoring results, review of operation, and maintenance procedures and records, and inspection of the control device, associated capture system, and process.

[40 CFR 64.7(d)(2)]

3. After approval of monitoring under this part, if the Permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the Permittee shall promptly notify the Department, and if necessary, submit a proposed modification to this Permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, re-establishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.

[40 CFR 64.7(e)]

4. Along with the compliance certification report required by Condition VII.B.4 of Attachment "A" of this Permit, the Permittee shall submit a monitoring report, including at a minimum, the following:

- a. Summary information on the number, duration and cause (including unknown cause, if applicable) of excursion or exceedances, as applicable, and the corrective actions taken; and

[40 CFR 64.9(a)(2)(i)]

- b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable).

[40 CFR 64.9(a)(2)(ii)]

5. CAM Plans

The Permittee shall include the following in the CAM plan for Fabric Filter Dust

Collectors subject to CAM requirements:

- a. Indicators: Visible emission  
[40 CFR 64.3(a)(1)]
- b. Monitoring Approach: Daily monitoring and recordkeeping of visible emissions from the control equipment using a 1-minute visible emissions survey (i.e. EPA Reference Method 22 like procedures)..  
[40 CFR 64.3(b)(4)(iii)]
- c. Indicator Range/Threshold: No visible emissions.  
[40 CFR 64.3(a)(2) & (3)]
- d. Excursions Determinations: Any opacity observed during the 1-minute visible emission survey under EPA Reference Method 22 like procedures constitutes an excursion event.  
[40 CFR 64.6(c)(2)]

**D. Periodic Opacity Monitoring for Emission Units Not Subject to CAM**

- 1. Opacity Monitoring Methodology for Emissions Associated with Stacks
  - a. The Certified EPA Reference Method 9 observer shall conduct, in accordance with the observation plan approved on October 9, 2008 or any subsequently approved observation plan, bi-weekly surveys of visible emissions from all the emission units identified in the following sections unless specified otherwise.  
[A.A.C. R18-2-306.A.3.c]
  - b. If the observer, during the visual survey, does not see visible emissions that on an instantaneous basis appears to exceed the applicable opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.  
[A.A.C. R18-2-306.A.3.c]
  - c. If the observer sees visible emissions that on an instantaneous basis appears to exceed the applicable opacity standard, then the observer shall, if practicable, take a six-minute EPA Reference Method 9 observation of the plume.  
[A.A.C. R18-2-306.A.3.c]
  - d. If the six-minute opacity of the plume is less than the opacity standard, the observer shall make a record of the following:  
[A.A.C. R18-2-306.A.3.c]
    - (1) Location, date, and time of the test; and
    - (2) The results of the EPA Reference Method 9 observation.
  - e. If the six-minute opacity of the plume exceeds the opacity standard, then the Permittee shall do the following:
    - (1) Adjust or repair the controls or equipment to reduce opacity to or below the opacity standard; and

- (2) Report the event as an excess emission for opacity.  
[A.A.C.R18-2-306.A.3.c, -310.01]

2. Opacity Monitoring Methodology for Fugitive Emissions Sources

- a. The Certified EPA Reference Method 9 observer shall conduct, in accordance with the observation plan approved on October 9, 2008 or any subsequently approved observation plan, bi-weekly surveys of visible emissions from all the emission units identified in the following sections unless specified otherwise.
  - b. If the observer, during the visual survey, does not observe any plume from any fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.
  - c. If the observer sees visible emissions from a fugitive source that on an instantaneous basis appears to exceed the opacity standard, then the observer shall if practicable take a six-minute EPA Reference Method 9 observation of the plume.
  - d. If the six-minute opacity of the plume exceeds the opacity standard, the Permittee shall do the following:
    - (1) Adjust or repair the controls or equipment to reduce opacity to below the opacity standard; and
    - (2) Report the event as excess emissions
  - e. If the six-minute opacity of the plume is less than the opacity standard, the observer shall make a record of the following:
    - (1) Location, date, and time of the test; and
    - (2) The results of the EPA Reference Method 9 observation
- [A.A.C.R18-2-306.A.3.c, -310.01]

3. Changes to the observation plan shall not be made without the prior approval of the Director.

[A.A.C. R18-2-306.A.2]

## II. CRUSHING OPERATIONS IN THE MINE

### A. Applicability

This Section is applicable to the equipment listed in Table C-1; Operation 001- Crushing Operations in the Mine in the Equipment List, Attachment "C" of this permit.

### B. Alternative Operating Scenario

[A.A.C. R18-2-306.A.2 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

1. The Permittee may operate the portable crushing system(s) (Process #001-256) to handle situations when the regular crushers have to be taken off-line for repairs or maintenance. The portable crusher(s) shall not have crushing capacity greater than the capacity of the crusher(s) that is being replaced. The portable crushing system(s) and ancillary equipment shall be equipped with equivalent pollution control equipment as appropriate to temporarily replace the equipment that have been taken off line and shall comply with all permit requirements listed in Condition II.C and II.D as applicable.
2. The Permittee shall keep a record of the capacity, dates, and duration of operation of the portable crushing system(s).

C. For equipment subject to the standards of performance for existing nonferrous metals industry sources (Equipment identified as "No" in Column 8, Table C-1, Operation 001-Crushing Operations in the Mine, Attachment "C" of this Permit), the Permittee shall comply with the following requirements for control of emissions of Particulate Matter and Opacity:

1. Emission Limitations/Standards

- a. The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere from any of the equipment in any one hour in total quantities in excess of the amount calculated by the following equation:

[A.A.C. R18-2-721.B.2]

$$E = 55.0 * P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour.

- b. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-721.D]

c. Voluntary Accepted Limits

- (1) The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the pollution control device controlling the portable crushing system (Process #001-256) replacing Process #001-353 to exceed 0.01 gr/dscf.

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (2) The Permittee shall not allow the emissions of PM and PM<sub>10</sub> from the pollution control device controlling the portable crushing system (Process #001-256) replacing Process #001-006 to exceed 0.002 gr/dscf and 0.001 gr/dscf, respectively.

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

d. Opacity Standard

[A.A.C. R18-2-702.B.3]

The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from any point source, to exceed 20 percent.

2. Air Pollution Control Requirements

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the water spray system associated with process #s 001-002, 001-186, 001-187, and 001-249 in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.

[A.A.C. R 18-2-306.01.A & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping, and Reporting Requirements

a. Daily Monitoring Requirements

[A.A.C. R 18-2-721.F]

The Permittee shall record the daily process rate and hours of operation of all material handling facilities.

b. Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for all emission units as per Condition I.D.

4. Testing Requirements

[A.A.C. R18-2-312 and -306.A.3.c]

The Permittee shall conduct the performance test on the control equipment controlling emissions from the portable crushing systems (process #001-256) as per the requirements of the AOS listed under Condition II.B to demonstrate compliance with the emission limits in Conditions II.C.1.c.(1) and II.C.1.c.(2).

a. Initial Test

The Permittee shall within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, conduct initial performance tests for PM and PM<sub>10</sub> on the stack of the fabric filter dust collectors associated with the portable crushing systems.

b. Subsequent Test

The Permittee shall conduct an additional performance test during the permit term if the portable crushing systems are operated for more than 2 years and the initial performance test results shows greater than 30 percent of the emissions limit. If the initial performance test results in less than or equal to 30 percent of the emissions limit, no further testing will be required during this permit term.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be

used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

5. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R-18-2-702.B.3, -721.B.2, D, and F.

D. For equipment Subject to the New Source Performance Standards (Equipment identified as "Yes" in Column 8, Table C-1: Operation 001- Crushing Operations in the Mine Attachment "C" of this Permit), the Permittee shall comply with the following requirements for control of emissions of Particulate Matter and Opacity:

1. Emission Limitations/Standards

- a. The Permittee shall not cause to be discharged into the atmosphere from an affected facility any stack emissions that contain PM in excess of 0.05 grams per dry standard cubic meter (0.02 gr/dscf).

[40 CFR 60.382(a)(1)]

- b. Voluntary Accepted Limits

[Material permit conditions are indicated by underline and italics]

- (1) The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the FFDC listed in Condition II.D.2.a or the pollution control device controlling the portable crushing system (Process #001-256) replacing Process #001-353 to exceed 0.01 gr/dscf.

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

- (2) The Permittee shall not allow the emissions of PM and PM<sub>10</sub> from the FFDC listed in Condition II.D.2.b or the pollution control device controlling the portable crushing system (Process #001-256) replacing Process #001-006 to exceed 0.002 gr/dscf and 0.001 gr/dscf, respectively.

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

- c. Opacity Standard

- (1) The Permittee shall not cause to be discharged into the atmosphere any stack emissions that exhibit greater than 7 percent opacity, unless the stack emissions are discharged from a wet scrubbing emission control device.

[40 CFR 60.382(a)(2) and A.A.C. R18-2-331.A.3.f]

- (2) The Permittee shall not cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10 percent opacity.

[40 CFR 60.382(b) and A.A.C. R18-2-331.A.3.f]

2. Air Pollution Control Requirements

- a. At all times, including periods of startup, shutdown, and malfunction, the

Permittee shall, to the extent practicable, install, maintain, and operate the fabric filter dust collector associated with the In-Pit Crusher 1 (process #001-353) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

[40 CFR 60.11(d), A.A.C. R18-2-306.A.2 & -331.A.3.d & e]

[Material permit conditions are indicated by underline and italics]

- b. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collector associated with the In-Pit Crusher 2 (process#001-006) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- c. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collector associated with the In-Pit Crusher 3 and transfer point of Feeder Belt FB3 to Discharge Conveyor P11 (process #001-250) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions. This fabric filter dust collector shall vent indoors within the IPC 3 building.

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

### 3. Monitoring, Recordkeeping, and Reporting Requirements

#### Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct the periodic opacity monitoring for all emission units as per Condition I.D.

### 4. Testing Requirements

- a. The performance test shall be used to demonstrate compliance with the limit in Conditions II.D.1.a and II.D.1.b(1) as detailed below.

#### (1) Initial Test

The Permittee shall within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, conduct initial performance tests for PM and PM<sub>10</sub> on the stack of the fabric filter dust collector associated with In-Pit Crusher 1 (process #001-353).

#### (2) Subsequent Test

The Permittee shall conduct an additional performance test during the permit term if the initial performance test results in greater than 30 percent of the emissions limit. If the initial performance test results in less than or equal to 30 percent of the emissions limit, no further testing will be required during this permit term.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

[40 CFR 60.8, 60.386(a), (b)(1), A.A.C. R18-2-306.A.3.c, & -312]

- b. The Permittee shall conduct the performance test on the control equipment controlling emissions from the portable crushing systems (process #001-256) as per the requirements of the AOS listed under Condition II.B to demonstrate compliance with the emission limits in Conditions II.D.1.a and II.D.1.b.

(1) Initial Test

The Permittee shall within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, conduct initial performance tests for PM and PM<sub>10</sub> on the stack of the fabric filter dust collectors associated with the portable crushing systems.

(2) Subsequent Test

The Permittee shall conduct an additional performance test during the permit term if the portable crushing systems are operated for more than 2 years and the initial performance test results in greater than 30 percent of the emissions limit. If the initial performance test results in less than or equal to 30 percent of the emissions limit, no further testing will be required during this permit term.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

[40 CFR 60.8, 60.386(a), (b)(1), A.A.C. R18-2-306.A.3.c, & -312]

- c. For purpose of demonstrating initial compliance with Conditions II.D.1.c.(1) and II.D.1.c.(2), the Permittee, shall conduct opacity observation concurrently with the initial performance tests required in Conditions II.D.4.a and II.D.4.b, except as allowed in 40 CFR 60.11(e)(1). The minimum total time of observation shall be 3 hours (30 6-minute averages). EPA Reference Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity from stack emissions and process fugitive emissions. The observer shall read opacity only when emissions are clearly identified as emanating solely from the affected facility being observed.

[40 CFR 60.11(b), 60.386(b)(2), & A.A.C. R18-2-306.A.3.c]

5. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 60.382(a)(1) & (a)(2), (b), 386(a), b(1), b(2), and A.A.C. R18-2-901(43).

### III. MATERIAL TRANSFER OPERATIONS

#### A. Applicability

This Section is applicable to the equipment and activities related to material transfer from the Mine to the Metcalf MFL Plant and Metcalf/Morenci Concentrators and from the Metcalf MFL Plant to the copper leaching stockpiles. These are listed in Table C-2: Operation 001- Mine (Material Transfer Operations), Table C-4: Operation 003-Metcalf MFL Plant Reclaim Conveyors (Material Transfer Operations), and Table C-6: Operation 003-Metcalf MFL Plant Conveyor Stacking System (Material Transfer Operations) in the Equipment List, Attachment "C" of this Permit.

#### B. Particulate Matter and Opacity

##### 1. Emission Limitations/Standards

- a. The Permittee shall not cause, allow, or permit the discharge of PM into the atmosphere from any of the equipment in any one-hour in total quantities in excess of the amount calculated by the following equation:  
[A.A.C. R18-2-721.B.2]

$$E = 55.0 * P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour.

- b. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-721.D]

##### c. Voluntary Accepted Limits

- (1) *The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the fabric filter dust collectors listed in Condition III.B.2.b to exceed 0.01 gr/dscf.*

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (2) *The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the fabric filter dust collectors listed in Condition III.B.2.c to exceed 0.004 gr/dscf.*

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (3) The Permittee shall not allow the emissions of PM and PM<sub>10</sub> from the fabric filter dust collectors listed in Condition III.B.2.d to exceed 0.002 gr/dscf and 0.001 gr/dscf respectively.

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (4) The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the fabric filter dust collectors listed in Condition III.B.2.e to exceed 0.004 gr/dscf.

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (5) The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the bag collectors listed in Condition III.B.2.f to exceed 0.007 gr/dscf.

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

d. Opacity Standard

The Permittee shall not cause, allow or permit visible emissions, from any point source, in excess of 20 percent.

[A.A.C-R18-2-702.B.3]

2. Air Pollution Control Requirements

- a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate water spray systems or at least equally efficient surfactant systems associated with the following: Conveyor Belt P14 to Intermediate Ore Stockpile (IOS) 1 (process #001-356), Conveyor Belt P6 to IOS 1 (process #001-016), Conveyor Belt P12 to Conveyor Belt P10 (process #001-344), Conveyor Belt P10 to IOS 2 (process #001-226), and Conveyor Belt S11 to Fine Ore Intermediate Stockpile (process #003-199) in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.

[A.A.C. R18-2-306.A.2 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- b. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, install, maintain, and operate fabric filter dust collectors for the following: Discharge Conveyor P1 to Conveyor Belt P13 (process #001-354) and Conveyor Belt P13 to Conveyor Belt P14 and Conveyor Belt R9 (process #001-355) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

[A.A.C. R18-2-306.A.2 and -331.A.3.d & e]

[Material permit conditions are indicated by underline and italics]

- c. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate fabric filter dust collectors for the following: Discharge Conveyor P11 to Conveyor Belt P12 & Conveyor Belt P5 (process #001-251) and Conveyor Belt P5 to Conveyor Belt P6 (process #001-015), in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

- d. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate fabric filter dust collectors for the following: Discharge Conveyor DC2 to Conveyor Belt P9 to Conveyor Belt P10 (process #001-225), Discharge Conveyor DC2 to Conveyor Belt P5 (process #001-325), IOS 2 to Conveyor Belt R8 (process #001-228), Conveyor Belt R8 to Conveyor Belt R9 (process #001-229), and Conveyor Belt R9 to Conveyor Belt R10 (process #003-273), in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

[A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- e. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate fabric filter dust collectors for the following: IOS 1 to Conveyor Belt R1A (process #001-299), IOS 1 to Conveyor Belt R1B (process #001-300), Conveyor Belts R1A & R1B to Conveyor Belt R7 (process #001-272), Conveyor Belt R2 to Conveyor Belt R11 (process #001-278), Conveyor Belt R10 to Conveyor Belt R3 (process #003-330), Conveyor Belt 14 to Conveyor Belt 15 (process #003-320), Conveyor Belt 15 to Conveyor Belt 16 (process #003-331), and Conveyor Belt 16 to Conveyor Belt S11 (process #003-309) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

[A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- f. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate bag collectors for the following: Conveyor Belts R1A & R1B to Conveyor Belt R2 (process #001-277), Conveyor Belt R3 to Conveyor Belt R4 (process #003-079), Conveyor Belt R4 to Conveyor Belt R5 and Conveyor Belt R5 to Conveyor Belt R6 (process # 003-080), Fine Ore Intermediate Stockpile to Conveyor Belt A1A (process #003-201), Conveyor Belt A1A to Conveyor Belt A2A (process #003-202), and Conveyor Belt A1A to Conveyor Belt A2C (process #003-203) in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.

[A.A.C. R 18-2-306.A.2, -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

### 3. Monitoring, Recordkeeping, and Reporting Requirements

#### a. Daily Monitoring Requirements

The Permittee shall record the daily process rate and hours of operation of all material handling facilities.

[A.A.C. R 18-2-721.F]

#### b. Opacity Monitoring Requirements

[A.A.C. R 18-2-306.A.3.c]

The Permittee shall conduct the periodic opacity monitoring for all emission units as per Condition I.D.

#### 4. Testing Requirements

##### a. Fabric Filter Dust Collectors Listed in Condition III.B.2.b

[A.A.C. R18-2-306.A.3.c & -312]

The performance test shall be used to demonstrate compliance with the limit in Condition III.B.1.c.(1) as detailed below:

##### (1) Initial Test

The Permittee shall within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, conduct initial performance tests for PM and PM<sub>10</sub> on the stacks of the fabric filter dust collectors controlling emission points listed in Condition III.B.2.b.

##### (2) Subsequent Test

The Permittee shall conduct an additional performance test during the permit term if the initial performance test results in greater than 30 percent of the emissions limit. If the initial performance test results in less than or equal to 30 percent of the emissions limit, no further testing will be required during this permit term.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

##### b. Fabric Filter Dust Collectors Listed in Condition III.B.2.d

[A.A.C. R18-2-306.A.3.c & -312]

The Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stacks of fabric filter dust collectors controlling emission points listed in Condition III.B.2.d, except process #s 001-228 and 003-273, once during the permit term. The fabric filter dust collector controlling emission points associated with process #s 001-228 and 003-273 will not be tested during the permit term. The performance test shall be used to demonstrate compliance with the limits in Condition III.B.1.c. (3).

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

c. Fabric Filter Dust Collectors Listed in Condition III.B.2.e  
[A.A.C. R18-2-306.A.3.c & -312]

The performance test shall be used to demonstrate compliance with the limit in Condition III.B.1.c. (4) as detailed below:

(1) Initial Test

The Permittee shall within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, conduct initial performance tests for PM and PM<sub>10</sub> on the stack of the fabric filter dust collectors controlling emission points associated with process #s 001-299, 001-300, and 001-278 listed in Condition III.B.2.e.

(2) Subsequent Test

The Permittee shall conduct an additional performance test on the stack of the fabric filter dust collectors controlling emission points associated with process #s 001-299, 001-300, and 001-278 listed in Condition III.B.2.e. during the permit term if the initial performance test results in greater than 30 percent of the emissions limit. If the initial performance test results in less than or equal to 30 percent of the emissions limit, no further testing will be required during this permit term.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

d. Bag Collectors Listed in Condition III.B.2.f  
[A.A.C. R18-2-306.A.3.c & -312]

The Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stack of the bag collector controlling emission points associated with process #s 001-277 and 003-201 once during the permit term.

The performance test shall be used to demonstrate compliance with the limits in Condition III.B.1.c. (5). EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

5. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R-18-2-702.B.3, -721.B.2, D, and F.

#### IV. CONCENTRATOR OPERATIONS

##### A. Applicability

This Section is applicable to the equipment related to the Concentrators listed in Table C-3: Operation 002-Morenci Concentrator, Table C-5: Operation 003- Metcalf MFL Plant Crushing Operations, Table C-7: Operation 017-Metcalf Concentrator, Table C-8: Operation 018- Combined Molybdenum Flotation Plant/Concentrate Processing Operations, and Table C-11: Operation 006-Copper Concentrate Processing Operations in Equipment List, Attachment "C" of this Permit.

- B. For equipment subject to the Standards of Performance for Existing Nonferrous Metals Industry Sources (Equipment identified as "No" in Column 8, Table C-3: Operation 002-Morenci Concentrator and Table C-5: Operation 003-Metcalf MFL Plant Crushing Operations, and Table C-11: Operation 006-Copper Concentrate Processing Operations), the Permittee shall comply with the following requirements for control of emissions of Particulate Matter and Opacity:

##### 1. Emission Limitation/ Standards

- a. The Permittee shall not cause, allow, or permit the discharge of PM into the atmosphere from any of the equipment in any one-hour in total quantities in excess of the amount calculated by the following equation:

$$E = 55.0 * P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour

P = the process weight rate in tons mass per hour

[A.A.C. R18-2-721.B.2]

- b. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-721.D]

- c. Voluntarily Accepted Limits

- (1) *The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the wet scrubbers listed in Condition IV.B.2.a to exceed 0.01 gr/dscf.*

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (2) *The Permittee shall not allow the emissions of PM and PM<sub>10</sub> from the fabric filter dust collectors listed in Condition IV.B.2.b to exceed 0.002 gr/dscf and 0.001 gr/dscf respectively.*

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (3) *The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the fabric filter dust collector listed in Condition IV.B.2.c to*

exceed 0.005 gr/dscf.

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

d. Opacity standards

[A.A.C-R18-2-702.B.3]

The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from any point source, to exceed 20 percent.

2. Air Pollution Control Requirements

- a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the wet scrubbers associated with process #s 003-082 and 003-089 in the Metcalf MFL Plant in a manner consistent with good air pollution practice for minimizing particulate matter emissions.

[A.A.C. R 18-2-306.A.2 & -331.A.3. e]

[Material permit conditions are indicated by underline and italics]

- b. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collectors for the following: Fine Crushing Line C to Conveyor Belt 3B to Conveyor Belt 3 (process #002-035) and Fine Crushing Line C to Conveyor Belt 3B to Conveyor Belt 3A (process #002-036) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

[A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- c. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collector associated with process #003-303 in the Metcalf MFL Plant in a manner consistent with good air pollution practices for minimizing particulate matter emissions.

[A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- d. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collectors associated with the following: Conveyor Belt R7 to Conveyor Belts 1A & 1B via the Coarse Ore Splitter (process #002-022), Coarse Ore Storage Bin (COSB) to Conveyor Belt 2A via Apron Feeders A1 through A4 (process #002-025), COSB to Conveyor Belt 2B via Apron Feeders B1 through B4 (process #002-026), COSB to Conveyor Belt 2C via Apron Feeders C1 through C4 (process #002-027), COSB to Conveyor Belt 2D via Apron Feeders D1 through D4 (process #002-028), Morenci Fine Crushing Line A to Conveyor Belt 3 (process #002-033), and Morenci Fine Crushing Line B to Conveyor Belt 3 (process #002-034) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions. These fabric filter dust collectors shall vent inside the Morenci Concentrator Building.

[A.A.C. R 18-2-306.A.2 & -331.A.3. e]

[Material permit conditions are indicated by underline and italics]

- e. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collector associated with the following: Conveyor Belt 1A to COSB (process #002-023) and Conveyor Belt 1B to COSB (process #002-024) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions. These fabric filter dust collector shall vent indoors into the COSB.

[A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- f. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collectors associated with the following: Conveyor Belt 3 to Conveyor Belt 4 to Conveyor Belt 5 (process #002-038) and Morenci Fine Crushing Line D to Conveyor Belt 3A (process #002-326) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions. These fabric filter dust collectors shall vent indoors.

[A.A.C. R 18-2-306 A 2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- g. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collectors associated with the following: Conveyor Belt 5A to Fine Ore Storage Bin (FOSB) (process #002-040) and Conveyor Belt 5 to FOSB (process #002-041) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions. These fabric filter dust collectors shall vent indoors into the FOSB.

[A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- h. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the dust collector associated with Conveyor Belt 9 (process # 003-307) in the Metcalf MFL Plant in a manner consistent with good air pollution practices for minimizing particulate matter emissions. This dust collector shall vent inside the Metcalf MFL Plant Crusher Building.

[A.A.C. R 18-2-306. A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

### 3. Monitoring, Recordkeeping, and Reporting

#### a. Daily Monitoring Requirements

[A.A.C. R 18-2-721.F]

The Permittee shall record the daily process rate and hours of operation of all material handling facilities.

#### b. Flow Rate and Pressure Drop Monitoring for the wet scrubbers controlling emission points listed in Condition IV.B.2.a.

- (1) The Permittee shall calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through each scrubber associated with the emission points. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 250$  Pascals

(±1 inch water) gauge pressure and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

[A.A.C. R18-2-306.A.3.c and -331.A.3.c]

[Material permit conditions are indicated by underline and italics]

- (2) The Permittee shall, calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate at each scrubber associated the emission points. The monitoring device must be certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

[A.A.C. R18-2-306.A.3.c and -331.A.3.c]

[Material permit conditions are indicated by underline and italics]

c. Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct the periodic opacity monitoring for all emission units as per Condition I.D.

4. Testing Requirements

- a. The Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stacks of the scrubbers controlling emission points associated with process #s 003-082 and 003-089 listed in Condition IV.B.2.a twice during the permit term. The performance test shall be used to demonstrate compliance with the limits in Condition IV.B.1.c.(1).

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

[A.A.C. R18-2-306.A.3.c & -312]

- b. The performance test shall be used to demonstrate compliance with the limit in Condition IV.B.1.c. (3) as detailed below:

(1) Initial Test

The Permittee shall within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, conduct initial performance tests for PM and PM<sub>10</sub> on the stack of the fabric filter dust collector controlling emission point (process #003-303) listed in Condition IV.B.2.c.

(2) Subsequent Test

The Permittee shall conduct an additional performance test during the permit term if the initial performance test results in greater than 30 percent of the emissions limit. If the initial performance test results in less than or equal to 30 percent of the

emissions limit, no further testing will be required during this permit term.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

[A.A.C. R18-2-306.A.3.c & -312]

5. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R-18-2-702.B.3, -721.B.2, D, and F.

- C. For equipment subject to the New Source Performance Standards (Equipment identified as "Yes" in Column 8, Table C-3: Operation 002-Morenci Concentrator, Table C-5: Operation003-Metcalf MFL Plant Crushing Operations, Table C-7: Operation 017-Metcalf Concentrator, Table C-8: Operation 018- Combined Molybdenum Flotation Plant/Concentrate Processing Operations, and Table C-11: Operation 006-Copper Concentrate Processing Operations in Equipment List, Attachment "C" of this Permit) the Permittee shall comply with the following requirements for control of emissions of Particulate Matter and Opacity:

1. Emission Limitation and Standards

- a. The Permittee shall not cause to be discharged into the atmosphere from an affected facility any stack emissions that contain PM in excess of 0.05 grams per dry standard cubic meter (0.02 grain/dscf). [40 CFR 60.382(a)(1)]

b. Voluntary Accepted Limits

- (1) *The Permittee shall not allow the emissions of PM and PM<sub>10</sub> from the fabric filter dust collector listed in Condition IV.C.2.a to exceed 0.002 and 0.001 gr/dscf respectively.*

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (2) *The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the fabric filter dust collectors listed in Condition IV.C.2.b to exceed 0.005 gr/dscf.*

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (3) *The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the fabric filter dust collectors listed in Condition IV.C.2.c to exceed 0.004 gr/dscf.*

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

- (4) *The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the wet scrubber listed in Condition IV.C.2.d to exceed 0.01 gr/dscf.*

[A.A.C. R 18-2-306.01.A & -331.A.3.a]

c. Opacity Standard

- (1) *The Permittee shall not cause to be discharged into the atmosphere any stack emissions that exhibit greater than 7 percent opacity unless the stack emissions are discharged from a wet scrubbing emission control device.*

[40 CFR 60.382(a)(2) and A.A.C. R18-2-331.A.3.f]

[Material permit conditions are indicated by underline and italics]

- (2) *The Permittee shall not cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10 percent opacity.*

[40 CFR 60.382(b) and A.A.C. R18-2-331.A.3.f]

[Material permit conditions are indicated by underline and italics]

2. Air Pollution Control Requirements

- a. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collector on Morenci Fine Crushing Lines B, C, and D (process #s 002-030, 002-031, and 002-032) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.*

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- b. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collectors associated with process #s 003-301, 003-302, and 003-304 in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.*

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- c. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collectors associated with process #s 002-311, 002-312, 002-313, 002-314, 002-315, 002-316, 003-317, 017-280, 017-281, 017-283, 017-284, 017-285, 017-286, 017-287, 017-288, 017-289, 017-290, 017-291, 017-292, 017-294, 017-318, and 017-319 in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.*

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- d. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the wet scrubber associated with process # 003-088 in the Metcalf MFL Plant in a manner consistent with good air pollution practice for minimizing particulate matter emissions.*

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- e. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric*

filter dust collector on Morenci Fine Crushing Line A (process #002-029) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions. This fabric filter dust collector shall vent inside the Morenci Concentrator Building.

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- f. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the fabric filter dust collectors on Conveyor Belt 3A to Conveyor Belt 4A to Conveyor Belt 5A via East Proportioning Gate 1 (process #002-039) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions. This fabric filter dust collector shall vent indoors.

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- g. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the dust collector associated with Tertiary Crushers C1 through C6 (process #003-306) in the Metcalf MFL Plant in a manner consistent with good air pollution practices for minimizing particulate matter emissions. This dust collector shall vent inside the Metcalf MFL Plant Crusher Building.

[40 CFR 60.11(d), A.A.C. R 18-2-306.A.2, & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

### 3. Monitoring, Recordkeeping, and Reporting Requirements

- a. Flow Rate and Pressure Drop Monitoring for wet scrubber listed in Condition IV.C.2.d.

- (1) The Permittee shall calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the scrubber associated with the emission point. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 250$  Pascals ( $\pm 1$  inch water) gauge pressure and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

[40 CFR 384 (a) and A.A.C. R18-2-331.A.3.c]

[Material permit conditions are indicated by underline and italics]

- (2) The Permittee shall, calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to the scrubber associated the emission point. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 5$  percent of the design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

[40 CFR 384 (b) and A.A.C. R18-2-331.A.3.c]

[Material permit conditions are indicated by underline and italics]

- b. Semi-annual Reporting Requirement for the Wet Scrubber listed in Condition IV.C.2.d

[40 CFR 60.385(c) and (d)]

The Permittee shall submit to the Director semi-annual reports of occurrences when the measurements of the scrubber pressure loss (or gain) or liquid flow rate differ by more than  $\pm 30$  percent from the average obtained during the most recent performance test. These reports shall be postmarked within 30 days following the end of the second and fourth calendar quarters.

c. Compliance Assurance Monitoring Requirements

The Permittee shall meet the CAM plan requirements listed in Condition I.C.5 for the fabric filter dust collectors associated with process #s 017-280 and 017-281.

[A.A.C. R 18-2-306.A.3.b]

d. Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for all emission units, other than the emission units associated with process #s 017-280 and 017-281 as per Condition I.D.

4. Performance Testing Requirements

- a. The Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stacks of fabric filter dust collectors controlling emission points listed in Condition IV.C.2.a twice during the permit term. The performance test shall be used to demonstrate compliance with the limits in Conditions IV.C.1.a and IV.C.1.b (1).

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

[40 CFR 60.8, 60.386(a), (b)(1), A.A.C. R18-2-306.A.3.c. and -312]

- b. The performance test shall be used to demonstrate compliance with the limit in Conditions IV.C.1.a and IV.C.1.b. (2) as detailed below:

(1) Initial Test

The Permittee shall within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, conduct initial performance tests for PM and PM<sub>10</sub> on the stack of the fabric filter dust collectors controlling emission points listed in Condition IV.C.2.b.

(2) Subsequent Test

The Permittee shall conduct an additional performance test for PM and PM<sub>10</sub> on each stack of the fabric filter dust collectors controlling emission points listed in Condition IV.C.2.b during the permit term.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

[40 CFR 60.8, 60.386(a), (b)(1), A.A.C. R18-2-306.A.3.c. and -312]

- c. The performance test shall be used to demonstrate compliance with the limit in Conditions IV.C.1.a and IV.C.1.b. (3).

(1) Initial Test

The Permittee shall within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, conduct initial performance tests for PM and PM<sub>10</sub> on the stack of the fabric filter dust collectors controlling emission points listed in Condition IV.C.2.c.

(2) Subsequent Test

(a) The Permittee shall conduct an additional performance test during the permit term on the stack of the fabric filter dust collectors associated with process points 003-317, 017-280, 017-281, 017-287, 017-288, 017-289, and 017-290.

(b) The Permittee shall conduct an additional performance test on the fabric filters listed in Condition IV.C.2.c, except the process points listed in Condition IV.C.4.c.(2)(a) above, during the permit term if the initial performance test results in greater than 30 percent of the emissions limit. If the initial performance test results in less than or equal to 30 percent of the emissions limit, no further testing will be required during this permit term.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

[40 CFR 60.8, 60.386(a), (b)(1), A.A.C. R18-2-306.A.3.c. and -312]

- d. The Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stack of the scrubber controlling emission points listed in Condition IV.C.2.d twice during the permit term. The performance test shall be used to demonstrate compliance with the limits in Conditions IV.C.1.a and IV.C.1.b (4).

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be

used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

[40 CFR 60.8, 60.386(a), (b)(1), A.A.C. R18-2-306.A.3.c. and -312]

- e. The Permittee, for purpose of demonstrating initial compliance with Conditions IV.C.1.c.(1) and IV.C.1.c.(2), shall conduct opacity observation concurrently with the initial performance tests required in Conditions IV.C.4.b and IV.C.4.c, except as allowed in 40 CFR 60.11(e)(1). The minimum total time of observation shall be 3 hours (30 6-minute averages). EPA Reference Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity from stack emissions and process fugitive emissions. The observer shall read opacity only when emissions are clearly identified as emanating solely from the affected facility being observed.

[40 CFR 60.8, 60.386(a), (b)(1), A.A.C. R18-2-306.A.3.c. and -312]

#### 5. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 60.382(a)(1), (a)(2), (b), 384(a), (b), 60.385(c), (d), 60.386(a), (b)(1), (b)(2), and A.A.C. R18-2-901(43).

#### D. Alternate Operating Scenario

1. *The Permittee may operate the equipment associated with Metcalf Concentrator tertiary crushing operations (process #s 017-291 and 017-292) in accordance with the Baseline Operating Scenario or the Alternate Operating Scenario as identified in Table C-7: Operation-017-Metcalf Concentrator in the Equipment List, Attachment "C" of this permit. Each operating scenario shall comply with the requirements listed in Condition IV.C.*

[A.A.C. R 18-2-306.A.11 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

2. The Permittee shall maintain records of the date and time when changing from one operating scenario to the other.

#### E. Hydrogen Sulfide (H<sub>2</sub>S) Scrubber System

1. Particulate Matter and Opacity

##### a. Emission Limitation/Standards

- (1) The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere from the H<sub>2</sub>S Scrubber System (process #018-336) in any one hour in total quantities in excess of the amount calculated by the following equation:

[A.A.C. R18-2-721.B.1]

$$E = 4.10 * P^{0.67}$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour.

- (2) The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-721.D]

(3) Opacity Standard

- (a) The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from any point source, to exceed 20 percent.

[A.A.C. R18-2-702.B.3]

- (b) If the presence of uncombined water is the only reason for an exceedance of the applicable opacity limit, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

b. Air Pollution Control Requirements

The Permittee shall install, maintain, and operate a hydrogen sulfide (H<sub>2</sub>S) scrubber system (process #018-336) before commencing carbon dioxide (CO<sub>2</sub>) injection to the molybdenum rougher/ cleaner flotation cells.

[A.A.C. R18-2-306.A.2 and -331.A.3.d & e]

[Material permit conditions are indicated by underline and italics]

c. Monitoring, Recordkeeping, and Reporting Requirements

The Permittee shall conduct periodic opacity monitoring for the H<sub>2</sub>S Scrubber System (process #018-336) when in operation as per Condition I.D.

[A.A.C. R18-2-306.A.3.c]

2. H<sub>2</sub>S Emissions

a. Emission Limitation/Standards

- (1) At all times, when CO<sub>2</sub> is injected to the molybdenum rougher/cleaner flotation cells, the Permittee shall operate the H<sub>2</sub>S scrubber system (process #018-336) complying with the following conditions:

- (a) The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under its control in such quantities or concentrations as to cause air pollution.

- (b) Where a stack, vent or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stacks, vent, or other outlet by the owner or operator thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to adjoining property.

[A.A.C. R18-2-730.G]

- (c) The Permittee shall not allow H<sub>2</sub>S to be emitted from any location in such manner and amount that the concentration of such emissions into the ambient air at any occupied place beyond the premises on which the source is located exceeds 0.03 parts per million by volume for any averaging period of 30 minutes or more.

[A.A.C. R18-2-730.H]

b. Air Pollution Control Requirements

The Permittee shall install, maintain, and operate a hydrogen sulfide (H<sub>2</sub>S) scrubber system (process #018-336) before commencing carbon dioxide (CO<sub>2</sub>) injection to the molybdenum rougher/ cleaner flotation cells.

[A.A.C. R18-2-306.A.2 and -331.A.3.d & e]

[Material permit conditions are indicated by underline and italics]

c. Monitoring, Recordkeeping, and Reporting Requirements

The Permittee shall maintain records of the date & time of CO<sub>2</sub> injection into the molybdenum rougher/cleaner flotation cells and date & time of operation of the H<sub>2</sub>S Scrubber System (process #018-336). [A.A.C. R18-2-306.A.3.c]

V. METCALF COMBINED CYCLE POWER PLANT

A. Applicability

This Section is applicable to the equipment related to Metcalf Combined Cycle Power Plant listed in Table C-9: Operation 005- Metcalf Combined Cycle Power Plant Equipment List, Attachment "C" of this Permit.

B. Voluntarily Accepted Limits

1. Type of Fuel

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

The Permittee shall burn only natural gas in the turbines and boilers.

2. Quantity of fuel

a. Gas Turbines 1 and 2

*The Permittee shall not use more than 871,620 MMBtu per year of natural gas in the Gas Turbine 1 and Gas Turbine 2 (process #s 005-108 and 005-110).*

b. Gas Boilers 1 and 2

*The Permittee shall not combust more than 170,000 MMBtu per year of natural gas in the Gas Boiler 1 and Gas Boiler 2 (process #s 005-109 and 005-111).*

[A.A.C. R18-2-306.01.A and -331.A.3.a]  
[Material permit conditions are indicated by underline and italics]

3. Monitoring, Reporting and Recordkeeping requirements

[A.A.C. R18-2-306.A.3.c]

a. Gas Turbines 1 and 2

The Permittee shall keep monthly records of the operating hours of the turbines, the total fuel consumed in the turbines and the high heating value of the fuel. At the end of the month, the Permittee shall compute and record the following:

- (1) A 12-month rolling total of fuel MMBtu consumed in the turbines; and
- (2) The total operating hours of the turbines during the permit term.

b. Gas Boilers 1 and 2

The Permittee shall keep monthly records of the operating hours of the boilers, the total fuel consumed in the boilers and the high heating value of the fuel. At the end of the month, the Permittee shall compute and record the following:

- (1) A 12-month rolling total of fuel MMBtu consumed in the boilers; and
- (2) The total operating hours of the boilers during the permit term.

**C. Combined Cycle Operation of Gas Turbine 1 with Boiler 1 and Gas Turbine 2 with Boiler 2 or Boiler 1 and Boiler 2 in stand alone mode**

The Permittee shall comply with the following requirements when operating the system in combined cycle or boilers in stand alone mode:

1. Particulate Matter & Opacity

a. Emission Limitations and Standards

- (1) The Permittee shall not cause, allow or permit the emission of particulate matter into the atmosphere, caused by combustion of fuel, from any fuel burning operation in excess of the amounts

calculated by the following equation:

$$E = 1.02 * Q^{0.769}$$

Where

E = the maximum allowable particulate emission rate in pounds-mass per hour

Q = the heat input in million Btu per hour  
[A.A.C. R18-2- 703.C.1]

- (2) For purposes of Condition V.C.1.a (1), the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all operating fuel-burning units on a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

[A.A.C. R18-2-703.B]

(3) Opacity Standard

- (a) The Permittee shall not cause, allow or permit the opacity of any plume or effluent from either boiler to exceed 20 percent.

[A.A.C. R18-2-702.B.3]

- (b) If the presence of uncombined water is the only reason for an exceedance of any visible emissions requirement, the exceedance shall not constitute a violation of the opacity limit specified in Condition V.C.1.a.(3)(a).

[A.A.C. R18-2-702.C]

b. Monitoring, Reporting, and Recordkeeping

The Permittee shall keep records of fuel supplier specifications. The specifications shall contain information regarding the name of fuel supplier and higher heating value of the fuel. These records shall be made available to ADEQ upon request.

[A.A.C. R18-2-306.A.3.c]

c. Permit Shield

[A.A.C. R18-2-325]

Compliance with the terms of this section shall be deemed compliance with A.A.C. R18-2-702.B.3 & C, -703.B, and C.1.

2. Oxides of Nitrogen (NO<sub>x</sub>)

a. Emission Limitations and Standards

[A.A.C. R18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The emissions of NO<sub>x</sub> from each boiler during combined cycle or stand alone mode shall not exceed 0.32 lbs/MMBtu or 0.27 lbs/MMBtu respectively.*

b. Performance Testing Requirements

[A.A.C. R18-2-306.A.3.c and -312]

Within 90 days of initial restart of the boiler or the combined cycle system, the Permittee shall conduct performance test for NO<sub>x</sub> on the stack of each Gas Boiler, to show compliance with the emission limit in Condition V.C.2.a. The performance tests shall be conducted in accordance with EPA Reference Method 7E in 40 CFR 60, Appendix A.

3. Carbon monoxide (CO)

a. Voluntary Accepted Limit

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The emissions of CO from each gas boiler during combined cycle or stand alone mode shall not exceed 0.082 lbs/MMBtu or 0.08 lbs/MMBtu respectively.*

b. Performance Testing Requirements

[A.A.C. R18-2-306.A.3.c & -312]

Within 90 days of initial restart of the boiler or the combined cycle system, the Permittee shall conduct performance test for CO on the stack of each Gas Boiler, to show compliance with the emission limit in Condition V.C.3.a. The performance tests shall be conducted in accordance with Reference Method 10 in 40 CFR 60, Appendix A.

**D. Gas Turbine 1 and 2**

The Permittee shall comply with the following requirements when operating only the gas turbines:

1. Particulate Matter and Opacity

a. Emission Limitations and Standards

- (1) The Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from any fuel burning operation in excess of the amounts calculated by the following equation:

$$E = 1.02 * Q^{0.769}$$

Where

E = the maximum allowable particulate emission rate in pounds-mass per hour

Q = the heat input in million Btu per hour

[A.A.C. R18-2-719.C.1]

- (2) For purposes of Condition V.D.1.a.(1), the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all

operating fuel-burning units on a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

[A.A.C. R18-2-719.B]

(3) Opacity

[A.A.C. R18-2-719.E]

The Permittee shall not cause, allow or permit the opacity of any plume or effluent from either turbine to exceed 40 percent. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

b. Monitoring, Reporting, and Recordkeeping

[A.A.C. R18-2-306.A.3.c]

The Permittee shall keep records of fuel supplier specifications. The specifications shall contain information regarding the name of fuel supplier and higher heating value of the fuel. These records shall be made available to ADEQ upon request.

c. Permit Shield

[A.A.C. R18-2-325]

Compliance with the terms of this section shall be deemed compliance with A.A.C. R18-2-719.B, C.1, and E.

2. Oxides of Nitrogen (NO<sub>x</sub>)

a. Emission Limitations and Standards

[A.A.C. R18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The emissions of NO<sub>x</sub> from each gas turbine shall not exceed 0.32 lbs/MMBtu.*

b. Performance Testing Requirements

[A.A.C. R18-2-306.A.3.c & -312]

Upon completion of 1,440 operating hours (60 days at 24 hours/day) of each gas turbine, but not less frequent than once during the permit term, the Permittee shall conduct performance test for NO<sub>x</sub> on the stack of each Gas Turbine to show compliance with the emission limit in Condition V.D.2.a. The performance tests shall be conducted in accordance with EPA Reference Method 7E in 40 CFR 60, Appendix A.

3. Carbon monoxide (CO)

a. Emission Limitations and Standards

[A.A.C. R18-2-306.01.A & -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The emissions of CO from each gas turbine shall not exceed 0.082 lbs/MMBtu.*

b. Performance Testing Requirements

Upon completion of 1,440 operating hours (60 days at 24 hours/day) of each gas turbine, but not less frequent than once during the permit term,, the Permittee shall conduct performance test for CO on the stack of each Gas Turbine to show compliance with the emission limit in Condition V.D.3.a. The performance tests shall be conducted in accordance with Reference Method 10 in 40 CFR 60, Appendix A.

## **E. Cooling Towers 1 and 2**

### **Particulate Matter and Opacity**

#### **1. Emission Limitations/Standards**

- a. The Permittee shall not emit or cause to be emitted into the atmosphere particulate matter in excess of the allowable hourly emission rate determined as follows:

- (1) Determination of the allowable emission rates (E) for process weight rates up to 60,000 lb/hr shall be accomplished by use of the equation:

$$E = 4.10 * P^{0.67}$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour; and

P = the process weight rate in tons-mass per hour.  
[A.A.C. R18-2-730.A.1.a]

- (2) Determination of the allowable emission rates (E) for process weight rates in excess of 60,000 lb/hr shall be accomplished by use of the equation:

$$E = 55.0 * P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour; and

P = the process weight rate in tons-mass per hour.  
[A.A.C. R18-2-730.A.1.b]

- (3) The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-730.B]

- (4) The Permittee shall not cause, allow or permit to be emitted into the atmosphere any plume or effluent the opacity of which exceeds 20 percent, measured in accordance with Reference

- (5) If the presence of uncombined water is the only reason for an exceedance of the applicable opacity requirement, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C.R18-2-702.C]

- (6) Where a stack, vent, or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent, or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce, or eliminate the discharge of air pollution to adjoining property.

[A.A.C.R18-2-730.G]

2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C.R18-2-306.A.3.c, -310.01]

- a. A certified EPA Reference Method 9 observer shall conduct initial visual survey of visible emissions from the cooling towers within thirty days of start up of the cooling towers. Subsequent visual surveys shall be conducted no less frequently than once per calendar quarter when in operation.
- b. If visible emissions are detected during the visual survey of a cooling tower, the observer shall conduct an EPA Reference Method 9 observation of emissions from that cooling tower.
- c. If the EPA Reference Method 9 observation results in an exceedance of the opacity limit contained in Condition V.E.1.a.(4), the Permittee shall take corrective action as necessary to reduce the opacity below the applicable limit. All exceedances shall be reported as excess emissions in accordance with Condition XII.A.1 of Attachment "A".
- d. For each visual survey and Method 9 observation, the Permittee shall maintain a record of the following, as applicable:
- (1) The name of the observer;
  - (2) The date, time, and location of each visual survey and Method 9 observation;
  - (3) The results of each visual survey and Method 9 observation; and
  - (4) All corrective actions taken

3. Permit Shield

[A.A.C.R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R18-2-702.B.3 & C, -730.A.1, B, and G.

## VI. LIME SLAKING PLANTS

### A. Applicability

This Section is applicable to the equipment related to the Lime Slaking Plants and listed in "Table C-10: Operation 004- Lime Slaking Plants" Equipment List, Attachment "C" of this Permit.

### B. Particulate Matter and Opacity

#### 1. Emission Limitations/Standards

- a. The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere in any one-hour from any process source in total quantities in excess of the amount calculated by the following equation:

[A.A.C. R18-2-730.A.1.a]

$$E = 4.10 * P^{0.67}$$

Where:

E = the maximum allowable particulates emissions rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour.

- b. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-730.B]

#### c. Opacity Standards

- (1) The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from any point source, to exceed 20 percent.

[A.A.C. R18-2-702.B.3]

- (2) If the presence of uncombined water is the only reason for an exceedance of the applicable opacity limit, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

#### 2. Air Pollution Control Requirements

- a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable maintain and operate the dust filters on Lime Silos 1 and 2 in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

[A.A.C. R18-2-306.A.2 & 331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- b. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable maintain and operate a water spray mist control system on Lime Slakers 1 and 2 in a manner consistent with good air pollution control practice for minimizing

particulate matter emissions.

[A.A.C. R18-2-306.A.2 and 331.A.3. e]

[Material permit conditions are indicated by underline and italics]

- c. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate a bin vent filter on Metcalf Lime Silo in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.*

[A.A.C. R 18-2-306.A.2, -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping, and Reporting Requirements

Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct the periodic opacity monitoring for all emission units as per Condition I.D.

4. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R-18-2-702.B.3, -C, -730.A.1.a, and B.

**VII. SOLUTION EXTRACTION/ELECTROWINNING (SX/EW) PROCESS SYSTEMS**

**A. Applicability**

This Section is applicable to the equipment related to Solution Extraction/ Electrowinning Systems and listed in "Table C-12: Operation 009: Solution Extraction/ Electrowinning" Equipment List, Attachment "C" of this Permit.

**B. All Solution Extraction/ Electrowinning (SX/EW) except the Small Industrial Boilers and Hot Water Pressure Cleaners**

1. Particulate Matter and Opacity

a. Emission Limitations/Standards

- (1) The Permittee shall not cause or permit the discharge of particulate matter into the atmosphere from any of the equipment in any one hour in total quantities in excess of the amount calculated by the following equations:

- (a) For process weight rates of 60,000 lb/hr or less:

$$E = 4.10P^{0.67}$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour; and

P = the process weight rate in tons-mass per hour.

[A.A.C. R18-2-730.A.1.a]

- (b) For process weight rates greater than 60,000 lb/hr:

$$E = 55.0P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour; and

P = the process weight rate in tons-mass per hour.  
[A.A.C. R18-2-730.A.1.b]

- (c) The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-730.B]

(2) Opacity Standard

- (a) The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from any point source, to exceed 20 percent.

[A.A.C. R18-2-702.B.3]

- (b) If the presence of uncombined water is the only reason for an exceedance of the applicable opacity limit, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

b. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for all emission units as per Condition I.D.

c. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R18-2-702.B.3, C, -730.A.1, and B.

2. Volatile Organic Compounds (VOCs) and Other Miscellaneous Emissions

a. Emission Limitation/Standards

- (1) The Permittee shall not cause the emission of gaseous or odorous materials from equipment and operations associated with the SX/EW process in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

- (2) Materials including solvents or other volatile compounds, acids, and alkalis utilized in the SX/EW process shall be processed, stored, used, and transported in such a manner and by such

means that they will not evaporate, leak, escape or be otherwise be discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

- (3) Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor, or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to the adjoining property.

[A.A.C. R18-2-730.G]

b. Air Pollution Control Requirements

- (1) The Permittee shall maintain and use the covers on the mixer settler tanks to control emissions from the Solution Extraction Systems.

[A.A.C. R18-2-306.A.2 and 331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- (2) The Permittee shall use one or more of the following methods to control emissions from the Electrowinning Systems:

[A.A.C. R18-2-306.A.2 and 331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- (a) Foam;  
(b) Blankets;  
(c) Surfactants;  
(d) Brushes;  
(e) Thermal retention balls; or  
(f) Other effective means of controlling emissions as approved by the Director.

c. Monitoring, Recordkeeping, and Reporting Requirements

The Permittee shall maintain a record of the control measures used in the SX/EW Systems.

[A.A.C. R18-2-306.A.3.c]

d. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R-18-2-730.D, F, and G.

C. Small Industrial Boilers

## Voluntarily Accepted Limits

### 1. Type of Fuel

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The Permittee shall burn only natural gas in the small industrial boilers 1, 2, 3, 4, and 5 (Process #s 009-123, 009-184, 009-185, 009-222, and 009-223).*

### 2. Quantity of fuel

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The Permittee shall not combust more than a combined total of 458,148 MMBtu/year of natural gas in the small industrial boilers 1, 2, 3, 4, and 5 (Process #s 009-123, 009-184, 009-185, 009-222, and 009-223).*

### 3. Monitoring, reporting and Recordkeeping requirements

- a. The Permittee shall keep a monthly record of total fuel and the higher heating value of fuel combusted in the small industrial boilers. At the end of the month, a 12-month rolling total of fuel and MMBtu consumed in the small industrial boilers shall be computed.

[A.A.C. R18-2-901.5, 40 CFR 60.48c.(g)(2)]

- b. The Permittee shall maintain these records for a period of two years following the date of such record.

[A.A.C. R18-2-306.A.3.c & -901.5, 40 CFR 60.48c (i)]

### 4. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 60.48c (g)(2), (i), and A.A.C. R18-2-901.5.

## D. Hot Water Pressure Cleaners

### 1. Fuel Limitation

[A.A.C. R18-2-306.A.2]

The Permittee shall only fire ultra low sulfur diesel fuel in the hot water pressure cleaners (Process #s 009-274 and 009-347).

### 2. Particulate Matter and Opacity

#### a. Emissions Limitations and Standards

- (1) The Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from any fuel-burning operation, into the atmosphere in excess of the amounts calculated by the following equation:

$$E = 1.02 * Q^{0.769}$$

Where

E = the maximum allowable particulate emission rate in pounds-mass per hour

Q = the heat input in million Btu per hour [A.A.C. R18-2-724.C.1]

- (2) For purposes of this Section, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all fuel-burning units on a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

[A.A.C. R18-2-724.B]

- (3) The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from the Hot Water Pressure Cleaners, to exceed 15percent.

[A.A.C. R18-2-724.J]

b. Monitoring, Recordkeeping, and Reporting Requirements

- (1) The Permittee shall keep records of fuel supplier certifications. The certification shall contain information regarding the name of fuel supplier and lower heating value of the fuel. These records shall be made available to the Director upon request.

[A.A.C. R18-2-306.A.3.c]

- (2) A certified EPA Reference Method 9 observer shall conduct a monthly survey of visible emissions emanating from the stack of each Hot Water Pressure Cleaner. If the opacity of the emissions observed appears to exceed the standard, the observer shall conduct a certified EPA Reference Method 9 observation. The Permittee shall keep records of the initial survey and any EPA Reference Method 9 observations performed. These records shall include the emission point observed, location of observer, name of observer, date and time of observation, and the results of the observation.

[A.A.C. R18-2-306.A.3.c]

- (3) If the observation shows an opacity reading in excess of 15 percent, the Permittee shall initiate appropriate corrective action to reduce the opacity below 15 percent. The Permittee shall keep a record of the corrective action performed.

[A.A.C. R18-2-306.A.3.c]

- (4) The Permittee shall report all six-minute periods in which the opacity of any plume or effluent from the hot water pressure cleaners exceeds 15 percent.

[A.A.C. R18-2-724.J]

c. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R18-2-724.B, C.1, and J.

3. Sulfur Dioxide (SO<sub>2</sub>)

a. Emission Limitation/Standards

[A.A.C.R18-2-724.E]

The Permittee shall not cause, allow or permit the emission of more than 1.0 pound of SO<sub>2</sub> per million Btu.

b. Monitoring, Reporting, and Recordkeeping

[A.A.C.R18-2-306.A.3.c]

The Permittee shall keep records of fuel supplier certifications or other documentation including the following information:

- (1) The name of the diesel supplier;
- (2) The sulfur content of diesel from which the shipment came; and
- (3) The method used to determine the sulfur content of the diesel.

c. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R18-2-724.E.

**VIII. CONCENTRATE LEACH PLANT (CLP), LABORATORY ACTIVITIES, AND PRILL BINS**

**A. Applicability**

This Section is applicable to the equipment related to the Concentrate Leach Plant Laboratory Activities, and Prill Bins listed in "Table C-13: Operation 014- Concentrate Leach Plant, Table C-14: Operation 019- Laboratory Activities", and Table C-26: Operation 022- Prill Bins", Equipment List, Attachment "C" of this Permit.

**B. Concentrate Leach Plant (except the Boiler), Laboratory Activities, and Prill Bins**

1. Particulate Matter and Opacity

a. Emission Limitation/Standards

- (1) The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere in any one hour from any process source having a process weight rate greater than 60,000 pounds per hour (30 tons per hour) in total quantities in excess of the amount calculated by the following equation:

$$E = 55.0 * P^{0.11 - 40}$$

Where:

E = the maximum allowable particulates emissions rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour.  
[A.A.C. R-18-2-730.A.1.b]

- (2) The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere in any one hour from any process source having a process weight rate equal to or less than 60,000 pounds per hour (30 tons per hour) in total quantities in excess of the amount calculated by the following equation:  
[A.A.C. R-18-2-730.A.1.a]

$$E = 4.10 * P^{0.67}$$

Where:

E= the maximum allowable particulates emissions rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour.

- (3) The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter  
[A.A.C. R18-2-730.B]

- (4) Voluntarily Accepted Limits

*The Permittee shall not emit more than 0.75 lb/hour each of PM or PM<sub>10</sub> from the pressure leach vessel (PLV) (process #014-239) wet scrubber listed in condition VIII.B.1.b.*

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

- (5) Opacity

- (a) The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from any point source, to exceed 20 percent.

[A.A.C-R18-2-702.B.3]

- (b) If the presence of uncombined water is the only reason for an exceedance of the applicable opacity limit, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C.R18-2-702.C]

b. Air Pollution Control Requirements

*At all times, including periods of startup, shutdown, and malfunction, Permittee shall, to the extent practicable maintain and operate the scrubber on the Pressure Leach Vessel (process #014-239) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.*

[A.A.C. R18-2-306.A.2 & -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

c. Monitoring, Recordkeeping, and Reporting Requirements

## Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring requirements for all emission units as per Condition I.D.

### d. Performance Testing Requirements

[A.A.C. R18-2-306.A.3.c & -312]

Within 90 days of start of the Concentrate Leach Plant, the Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stack of the wet scrubber controlling emission from process #014-239. Subsequent performance test shall be conducted once every two years. EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method shall be considered to have an aerodynamic diameter less than 10 microns. The performance test shall be used to demonstrate compliance with the limit in Condition VIII.B.1.a.(4).

### e. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R-18-2-702.B.3, -C, -730.A.1, and B.

## 2. Volatile Organic Compounds (VOC)

### a. Emission Limitation/Standards and Other Miscellaneous Emissions

- (1) The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under his control in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

- (2) Materials including solvents or other volatile compounds, acids, and alkalis shall be processed, stored, used, and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise be discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

- (3) Where a stack, vent or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stacks, vent, or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to an adjoining property.

(4) Voluntarily Accepted Limits

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The Permittee shall not emit more than 5.82 lbs/hour volatile organic compounds (VOC) from the combined pressure leach vessel (PLV) scrubber listed in condition VIII.B.2.b (process #014-239).*

b. Air Pollution Control Requirements

*At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the scrubber on the pressure leach vessel (process #014-239) in a manner consistent with good air pollution control practices for minimizing volatile organic compound emissions.*

[A.A.C. R18-2-306.A.2 & 331.A.3.e]

[Material perm conditions are indicated by underline and italics]

c. Performance Testing Requirements

[A.A.C. R18-2-306.A.3.c & -312]

Within 90 days of start of the Concentrate Leach Plant, the Permittee shall conduct performance tests for volatile organic compounds on the stack of the wet scrubber associated with process #014-239. Subsequent test shall be completed once every two years. The performance test shall be conducted in accordance with Reference Method 25A for VOCs in 40 CFR 60, Appendix A. The performance test shall be used to demonstrate compliance with the limit in Condition VIII.B.2.a.(4).

d. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R-18-2-730.D, F, and G.

**C. Natural Gas Startup Boiler**

1. Voluntarily Accepted Limits

a. Type of Fuel

[A.A.C. R18-2-306.01.A]

[Material permit conditions are indicated by underline and italics]

*The Permittee shall burn only natural gas in the natural gas start-up boiler (process #014-242).*

b. Quantity of fuel

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The Permittee shall not combust more than 61,320 MMBtu per year of natural gas in the start-up boiler (process #014-242).*

c. Monitoring, Reporting and Recordkeeping requirements

- (1) The Permittee shall keep a monthly record of natural gas fired and the high heating value of natural gas in the start-up boiler. At the end of the month, 12-month rolling total of natural gas and MMBtu consumed in the start-up boiler shall be computed.

[A.A.C. R18-2-306.A.3.c & -901.5, 40 CFR 60.48c (g)(2)]

- (2) The Permittee shall maintain these records for a period of two years following the date of such record.

[A.A.C. R18-2-306.A.3.c & -901.5, 40 CFR 60.48c (i)]

d. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 60.48c (g)(2), (i), and A.A.C. R18-2-901.5.

## IX. EMERGENCY GENERATOR

### A. Applicability

This Section is applicable to the equipment identified as "Yes" in Column 8 of Table C-15: Operation 015- Diesel Generators, Attachment "C" of this Permit.

### B. General Requirements

An emergency ICE shall be limited to emergency situations and required testing and maintenance only such as to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or used to pump water in the case of fire or flood, etc. Stationary CI ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity shall not be considered to be emergency engines.

[40 CFR 60.4219]

### C. Operating Requirements

#### 1. Operating Hours

*The Permittee shall not operate the Emergency Diesel Engine (process #015-262) for more than 300 hours in a rolling twelve- month period.*

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

2. The Permittee shall operate and maintain stationary CI ICE that achieve the emission standards as required in Condition IX.E over the entire life of the engine.

[40 CFR 60.4206]

3. The Permittee shall install non-resettable hour meters prior to startup on the emergency CI ICE that do not meet the standards applicable to non-emergency engines.

[40 CFR 60.4209(a)]

4. The Permittee shall operate and maintain the CI ICE and any control device

according to the manufacturer's written instructions, over the entire life of the engine.

[40 CFR 60.4211(a)(1)]

5. The Permittee shall only change those emission related settings that are permitted by the manufacturer.

[40 CFR 60.4211(a)(2)]

6. The Permittee shall meet the applicable requirements of 40 CFR Part 89, 94 and/or 1068, as they apply to the Permittee.

[40 CFR 60.4211(a)(3)]

7. The Permittee shall operate the ICE according to the requirements in Conditions IX.C.7.a through IX.C.7.c. For the ICE to be considered an emergency stationary ICE, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in Conditions IX.C.7.a through IX.C.7.c is prohibited. If the emergency ICE is not operated in accordance with the requirements in Conditions IX.C.7.a through IX.C.7.c, the ICE will not be considered an emergency ICE and must meet all requirements for non-emergency ICEs.

[40 CFR 60.4211(f)]

- a. There is no time limit on the use of the ICE in emergency situations.

[40 CFR 60.4211(f)(1)]

- b. The Permittee may operate emergency stationary ICE for any combination of the purposes specified in Conditions IX.C.7.b (1) through (3) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by Condition IX.C.7.c counts as part of the 100 hours per calendar year allowed by this condition.

[40 CFR 60.4211(f)(2)]

- (1) The Permittee may operate the emergency stationary ICE for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The Permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

[40 CFR 60.4211(f)(2)(i)]

- (2) The Permittee may operate the Emergency stationary ICE for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3; Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

[40 CFR 60.4211(f)(2)(ii)]

- (3) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

[40 CFR 60.4211(f)(2)(iii)]

- c. Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in Condition IX.C.7.b. Except as provided in Condition IX.C.7.c.(1), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 CFR 60.4211(f)(3)]

- (1) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

- (a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
- (b) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
- (c) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
- (d) The power is provided only to the facility itself or to support the local transmission and distribution system.
- (e) The Permittee identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the Permittee.

#### 8. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 4209(a), 4211(a), and (f).

#### D. Fuel Requirements

1. The Permittee shall use only diesel fuel that meets the requirements of nonroad diesel fuel listed in 40 CFR 80.510(b).

- a. Sulfur content: 15 ppm maximum; and
- b. A minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

2. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 60.4207(b).

**E. Emission Limitations and Standards**

1. The Permittee shall comply with the emission standards listed in the Table below:  
[40 CFR 60.4205(b)]

ICE between	PM	CO	NOx + NMHC
	g/kW-hr		
37 ≤ kW < 75 kW, displacement less than 10 liters per cylinder [40 CFR 60.4202(a)(2)]	0.40	5.0	4.7
225 ≤ kW < 450 kW, displacement less than 10 liters per cylinder [40 CFR 60.4202(a)(2)]	0.20	3.5	4.0
560 < kW ≤ 2237, displacement less than 10 liters per cylinder [40 CFR 60.4202(a)(2)]	0.20	3.5	6.4
kW > 2237, displacement less than 10 liters per cylinder [40 CFR 60.4202(b)(2)]	0.20	3.5	6.4

2. The Permittee shall limit exhaust opacity from the emergency engines (excluding single cylinder and constant speed engines) to not exceed:  
[40 CFR 60.4205 (b) and 89.113]
  - a. 20 percent during the acceleration mode;
  - b. 15 percent during the lugging mode; and
  - c. 50 percent during peaks in either the acceleration or lugging mode.

3. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 60.4205 (b).

**F. Compliance Requirements**

1. The Permittee shall comply by purchasing an engine certified to the emission standards in Condition IX.E. The engine must be installed and configured according to the manufacturer's emission related specifications.

2. If the Permittee does not install, configure, operate, and maintain the ICEs and control device according to the manufacturer's emission-related written instructions, or change emission-related settings in a way that is not permitted by the manufacturer, the Permittee shall demonstrate compliance as follows:

- a. For the ICE with maximum engine power less than 100 HP, the Permittee shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if the Permittee does not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or change the emission-related settings in a way that is not permitted by the manufacturer, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

[40 CFR 60.4211(g)(1)]

- b. For the ICE greater than or equal to 100 HP and less than 500 HP, the Permittee shall keep a maintenance plan and records of conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the Permittee changes emission-related settings in a way that is not permitted by the manufacturer.

[40 CFR 60.4211(g)(2)]

- c. For the ICE greater than 500 HP, the Permittee shall keep a maintenance plan and records of conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the Permittee change emission-related settings in a way that is not permitted by the manufacturer. The Permittee shall conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, to demonstrate compliance with the applicable emission standards.

[40 CFR 60.4211(g)(3)]

3. The Permittee shall comply with the requirements of 40 CFR 63, Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII.

[40 CFR 63.6590 (c)]

4. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 60.4211(c) and (g).

**G. Recordkeeping Requirements**

1. Starting with model years in Table 5 of 40 CFR Subpart IIII, the Permittee operating an emergency ICE that does not meet the standards applicable to non-emergency engines in the applicable model year, shall keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The Permittee shall record the dates and start and stop times when the ICE is operated and the reason it was in operation during that time.

[40 CFR 60.4214(b)]

2. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 60.4214(b).

**X. STORAGE TANKS**

**A. Applicability**

This Section is applicable to the equipment related to Storage Tanks listed in Table C-16: Operation 011 – Storage Tanks, Equipment List, Attachment "C" of this Permit

**B. Gasoline Storage Tanks and Gasoline Dispensing Facilities**

1. This Section applies to the following:

- a. Gasoline Dispensing Facilities (GDF), Gasoline Storage tanks at the GDFs as listed in Table C-16 Operation 011- Storage Tanks, Equipment List, Attachment "C" and associated equipment components in vapor or liquid gasoline service, pressure/vacuum vents on gasoline storage tanks and equipment necessary to unload product from cargo tanks into storage tanks at GDFs. The equipment used for the refueling of motor vehicles is not covered.

[40 CFR 63.11111 (a), (b), & (c), and 63. 11112(a)]

- b. Each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank.

[40 CFR 63.11111(a)]

2. In the event that any of the GDF/s become subject to the control requirement of higher average monthly throughput, the Permittee:

- a. Shall, within 90 days, send a notification about the date such a change has occurred in the particular GDF, and

[A.A.C. R18-2-306.A.2]

- b. Shall comply with the new applicable standards of 40 CFR Subpart CCCCCC no later than 3 years after the affected GDFs becomes subject

to the new control requirements.

[40 CFR 63.11113(c)]

3. Definition of Monthly Throughput

Monthly throughput is the total volume of gasoline that is loaded into, or dispensed from, all gasoline storage tanks at each GDF during a month. Monthly throughput is calculated by summing the volume of gasoline loaded into, or dispensed from, all gasoline storage tanks at each GDF during the current day, plus the total volume of gasoline loaded into, or dispensed from, all gasoline storage tanks at each GDF during the previous 364 days, and then dividing that sum by 12.

[40 CFR 63.11132]

4. Operating Limitations

- a. GDFs with less than 10,000 gallons throughput per month presently applicable to GDF 4 and 5

[40 CFR 63.11116(a)]

- (1) The Permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:

- (a) Minimize gasoline spills;
- (b) Clean up spills as expeditiously as practicable;
- (c) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a cover having a gasketed seal when not in use;
- (d) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

- (2) The Permittee shall have records available within 24 hours of a request by the Director to document the gasoline throughput.

[40 CFR 63.11116(b)]

- b. GDFs with monthly throughput greater than or equal to 10,000 gallons but less than 100,000 gallons throughput per month presently applicable to GDF 1, 2, and 3

[40 CFR 63.11116(a) and 63.11117(a)]

- (1) The Permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:

- (a) Minimize gasoline spills;
- (b) Clean up spills as expeditiously as practicable;

- (c) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a cover having a gasketed seal when not in use;
- (d) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

(2) Submerged Fill Pipes

The Permittee shall load gasoline into storage tanks by utilizing submerged filling.

- (a) The submerged fill pipes installed on or before November 9, 2006, must be no more than 12 inches from the bottom of the storage tank.

[40 CFR 63.11117(b)(1)]

- (b) The submerged fill pipes installed on or after November 9, 2006, must be no more than 6 inches from the bottom of the storage tank.

[40 CFR 63.11117(b)(2)]

- (3) The Permittee shall have records available within 24 hours of a request by the Director to document the gasoline throughput.

[40 CFR 63.11117(d)]

c. Storage Tanks

- (1) Each gasoline storage tank shall be equipped with a submerged filling device, or acceptable equivalent, for control of hydrocarbon emissions.

[A.A.C. R18-2-710.B]

- (2) All pumps and compressors that handle volatile organic compounds shall be equipped with mechanical seals or other equipment of equal efficiency to prevent release of organic contaminants into the atmosphere.

[A.A.C. R18-2-710.D]

5. Monitoring and Recordkeeping Requirements

- a. The Permittee shall maintain a monthly record of the gasoline throughput of each GDF.

[40 CFR 63.11116(d) and 11117(d)]

- b. The Permittee shall, for the gasoline storage tanks, maintain a file of the typical Reid vapor pressure of gasoline stored and of dates of storage. Dates on which the storage vessel is empty shall be shown.

[A.A.C. R18-2-710.E.1]

- c. If the gasoline is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent and the true vapor pressure is greater than 470 mm Hg (9.1 psia), the Permittee shall record the average monthly temperature, and true vapor pressure of gasoline at such temperature.

- d. The average monthly storage temperature shall be an arithmetic average calculated for each calendar month, or portion thereof, if storage is for less than a month, from bulk liquid storage temperatures determined at least once every seven days.

[A.A.C. R18-2-710.E.3]

- e. The true vapor pressure shall be determined by the procedures in American Petroleum Institute Bulletin 2517, amended as of February 1980 (and no future editions), which is incorporated herein by reference and on file with the Office of the Secretary of State. This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the Director requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, the Reid vapor pressure may be used. For other liquids, supporting analytical data must be made available upon request to the Director when typical Reid vapor pressure is used.

[A.A.C. R18-2-710.E.4]

#### 6. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 63.11111(a), (b), & (c), 11112(a), 11113(c), 11116(a) & (b), 11117(a), (b)(1), (b)(2), & (d), 111321, and A.A.C. R18-2-710.B, D, E.1, E.2.b, E.3 & E.4.

### C. Diesel Storage Tanks and Sulfuric Acid Storage Tanks

1. This Section applies to diesel storage tanks and sulfuric acid storage tanks as listed in Table C-16: Operation 011- Storage Tanks, Equipment List, Attachment "C" of this Permit.
2. Emission Limitation/Standards and Other Miscellaneous Emissions
  - a. The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under his control in such quantities or concentrations as to cause air pollution.
- b. Materials including solvents or other volatile compounds, acids, and alkalis shall be processed, stored, used, and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise be discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory.

[A.A.C. R18-2-730.D]

[A.A.C. R18-2-730.F]

- c. Where a stack, vent or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stacks, vent, or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to an adjoining property.

[A.A.C. R18-2-730.G]

3. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R18-2-730.D, F, and G.

## XI. CRUSHING AND SCREENING PLANT

### A. Applicability

This Section is applicable to the equipment related to Crushing and Screening Plant and listed in "Table C-17: Operation 020: Crushing and Screening Plant" Equipment List, Attachment "C" of this Permit.

- B. For equipment subject to the New Source Performance Standard (Equipment identified as "Yes" in Column 8, Table C-17: Operation 020: Crushing and Screening Plant, Attachment "C"), the Permittee shall comply with the following requirements for control of Opacity:

1. Emission Limitations/ Standards

- a. *The Permittee shall not allow to be discharged into the atmosphere any fugitive emissions which exhibit visible emissions greater than 15 percent opacity from any crusher at which a capture system is not used.*

[40 CFR 60.672.(b) and A.A.C. R18-2-331.A.3.f]

[Material permit conditions are indicated by underline and italics]

- b. *The Permittee shall not allow to be discharged into the atmosphere from any screening operation, transfer point on belt conveyors, or any other affected facility, except as provided in Condition XI.B.1.a, any fugitive emissions which exhibit visible emissions greater than 10 percent opacity.*

[40 CFR 60.672.(b) and A.A.C. R18-2-331.A.3.f]

[Material permit conditions are indicated by underline and italics]

2. Air Pollution Control Requirements

[40 CFR 60.11(d) and A.A.C. R18-2-306.01.A, -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

*At all times, including periods of startup, shutdown, and malfunction, the Permittee shall to the extent practicable, maintain and operate the wet spray system associated with Process #020-019 in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.*

3. Monitoring, Reporting, and Recordkeeping

The Permittee shall conduct periodic opacity monitoring for all emission units as

per Condition I.D.

[A.A.C. R18-2-306.A.3.c]

4. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of 40 CFR 60.372(b) and A.A.C. R 18-2-901(66).

- C. For equipment/ processes subject A.A.C. R18-2-722, Standard of Performance for Existing Gravel or Crushed Stone Processing Plants (Truck dumping of non metallic minerals into any screening operation, feed hopper, or crusher and the transferring of non metallic mineral from any belt conveyor to a stockpile), the Permittee shall comply with the following requirements for control of Particulate Matter and Opacity:

1. Emission Limitations/ Standards

- a. The Permittee shall not cause, allow, or permit the emission of particulate matter into the atmosphere in any one hour from any process source having a process weight rate greater than 60,000 pounds per hour (30 tons per hour) in total quantity in excess of the amount determined by the following equation:

$$E = 55.0 * P^{0.11} - 40$$

Where:

E = the maximum allowable particulate matter emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour.

[A.A.C. R18-2-722.B.2]

b. Opacity

The Permittee shall not cause, allow or permit visible emissions, from any point source, in excess of 20 percent.

[A.A.C-R18-2-702.B.3]

2. Air Pollution Control Requirements

- a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall to the extent practicable, maintain and operate the wet spray system associated with Process #020-019 in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

[A.A.C. R 18-2-306.01.A, -331.A.3.e, and -722.D]

[Material permit conditions are indicated by underline and italics]

- b. Fugitive emission shall be controlled in accordance with A.A.C. R18-2-604 to 607, as set forth in Condition XIV of Attachment "B".

[A.A.C. R 18-2-722.E]

3. Monitoring, Recordkeeping, and Reporting Requirements

- a. The Permittee shall install, calibrate, maintain, and operate monitoring

devices which can be used to determine daily the process weight of gravel or crushed stone produced. The weighing devices shall have an accuracy of  $\pm 5\%$  over their operating range.

[A.A.C. R 18-2-722.F]

- b. The Permittee shall maintain a record of daily production rates of gravel or crushed stone produced.

[A.A.C. R 18-2-722.G]

- c. The Permittee shall conduct periodic opacity monitoring for all emission units as per Condition I.D.

[A.A.C. R18-2-306.A.3.c]

## **XII. GRIZZLY OPERATIONS REQUIREMENTS**

### **A. Applicability**

This Section is applicable to the equipment listed in "Table C-18: Operation 013: Grizzly Operations" Equipment List, Attachment "C" of this Permit.

- B.** The Concentrate Grizzly, Stockpile Grizzly 1, and Stockpile Grizzly 2 shall comply with the following:

Particulate Matter and Opacity

#### **1. Emission Limitations/Standards**

- a. The Permittee shall not cause, allow, or permit the emission of particulate matter into the atmosphere in any one hour from the Concentrate Grizzly, Stockpile Grizzly 1, and Stockpile Grizzly 2 in excess of the amount calculated by the following equation:

$$E = 55.0 * P^{0.11} - 40$$

Where:

E = the maximum allowable particulate matter emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour.

[A.A.C. R18-2-721.B.2]

- b. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-721.D]

- c. Opacity

The Permittee shall not cause, allow or permit visible emissions, from any point source, in excess of 20 percent.

[A.A.C-R18-2-702.B.3]

#### **2. Monitoring, Recordkeeping, and Reporting Requirements**

- a. Daily Monitoring Requirements

The Permittee shall record the daily process rate and hours of operation of all material handling facilities.

b. Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for the Concentrate Grizzly, Stockpile Grizzly 1, and Stockpile Grizzly 2 when in operation as per Condition I.D.

C. The Construction Grizzlies 1, 2, and 3 shall comply with the following:

Particulate Matter and Opacity

1. Emission Limitations/Standards

- a. The Permittee shall not cause, allow, or permit the emission of particulate matter into the atmosphere in any one hour from Construction Grizzlies 1, 2, and 3 in excess of the amount calculated by the following equation:

$$E = 55.0 * P^{0.11} - 40$$

Where:

E = the maximum allowable particulate matter emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour.

[A.A.C. R18-2-730.A.1.b]

- b. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-730.B]

c. Opacity

The Permittee shall not cause, allow or permit visible emissions, from any point source, in excess of 20 percent.

[A.A.C-R18-2-702.B.3]

2. Monitoring, Recordkeeping, and Reporting Requirements

Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for Construction Grizzlies 1, 2, and 3 when in operation as per Condition I.D.

### XIII. CONCRETE BATCH PLANT

**A. Applicability**

This Section is applicable to the equipment related to Concrete Batch Plant and listed in "Table C-19: Operation 010- Concrete Batch Plant" Equipment List, Attachment "C" of this permit.

**B. All Concrete Batch Plant Equipment except Hot Water Heaters**

1. Fugitive dust emitted from concrete batch plant shall be controlled in accordance with Condition XIV of Attachment "B".

[A.A.C. R18-2-723]

2. Opacity Standards

[A.A.C. R18-2-702.B.3]

The opacity of emissions from any point source into the atmosphere shall not be greater than 20 percent as measured by EPA Reference Method 9.

3. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for all emission units as per Condition I.D.

4. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-604.A & B, -605, -606, 607, -612, -702.B.3, and -723.

**C. Propane Hot Water Heaters**

1. Fuel Limitation

[A.A.C. R18-2-306.A.2]

The Permittee shall only fire propane fuel in the hot water heaters 1, 2, and 3 (Process #s 010-270, 010-271 and 010-310).

2. Particulate Matter and Opacity

- a. Emission Limitation and Standards

- (1) The Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from any fuel-burning operation into the atmosphere in excess of the amounts calculated by the following equation:

$$E = 1.02 * Q^{0.769}$$

Where

E = the maximum allowable particulate emission rate in pounds-mass per hour

Q = the heat input in million Btu per hour

[A.A.C. R18-2-724.C.1]

- (2) For purposes of this Section, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all fuel-burning units on a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

[A.A.C. R18-2-724.B]

- (3) The Permittee shall not cause, allow or permit the opacity of any plume or effluent from the Hot Water Heaters to exceed 15 percent.

[A.A.C. R18-2-724.J]

b. Monitoring, Recordkeeping, and Reporting Requirements

- (1) The Permittee shall keep records of fuel supplier certifications. The certification shall contain information regarding the name of the fuel supplier and the lower heating value of the fuel. These records shall be made available to the Director upon request.

[A.A.C. R18-2-306.A.3.c]

- (2) A certified EPA Reference Method 9 observer shall conduct a monthly survey of visible emissions emanating from the stack of each Hot Water Heater. If the opacity of the emissions observed appears to exceed the standard, the observer shall conduct a certified EPA Reference Method 9 observation. The Permittee shall keep records of the initial survey and any EPA Reference Method 9 observations performed. These records shall include the emission point observed, location of observer, name of observer, date and time of observation, and the results of the observation.

[A.A.C. R18-2-306.A.3.c]

- (3) The Permittee shall report all 6-minute periods during in which the opacity of any plume or effluent from the Hot Water Heaters exceeds 15 percent.

[A.A.C. R18-2-724.J]

3. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-724B, C.1, and J.

#### **XIV. FUGITIVE DUST REQUIREMENTS**

##### **A. Applicability**

This Section applies to sources of fugitive dust at the facility.

##### **B. Particulate Matter and Opacity**

Open Areas, Roadways & Streets, Storage Piles, and Material Handling

##### **1. Emission Limitations/Standards**

- a. Opacity of emissions from any fugitive dust non-point source shall not be greater than 40 percent measured according to the 40 CFR 60, Appendix A, Reference Method 9.  
[A.A.C. R18-2-614]
- b. The Permittee shall not cause, allow or permit visible emissions from any fugitive dust point source, in excess of 20 percent opacity.  
[A.A.C. R18-2-702.B.3]
- c. The Permittee shall employ reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne including the following:
- (1) Keep dust and other types of air contaminants to a minimum in an open area where construction operations, repair operations, demolition activities, clearing operations, leveling operations, or any earth moving or excavating activities are taking place, by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means;  
[A.A.C. R18-2-604.A]
  - (2) Keep dust to a minimum from driveways, parking areas, and vacant lots where motor vehicular activity occurs by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means;  
[A.A.C. R18-2-604.B]
  - (3) Keep dust and other particulates to a minimum by employing dust suppressants, temporary paving, detouring, wetting down or by other reasonable means when a roadway is repaired, constructed, or reconstructed;  
[A.A.C. R18-2-605.A]
  - (4) Take reasonable precautions, such as wetting, applying dust suppressants, or covering the load when transporting material likely to give rise to airborne dust;  
[A.A.C. R18-2-605.B]
  - (5) Take reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods when crushing, handling, or conveying material likely to give rise to airborne dust;  
[A.A.C. R18-2-606]
  - (6) Take reasonable precautions such as chemical stabilization, wetting, or covering when organic or inorganic dust producing material is being stacked, piled, or otherwise stored;  
[A.A.C. R18-2-607.A]
  - (7) Operate stacking and reclaiming machinery utilized at storage piles at all times with a minimum fall of material, or with the use of spray bars and wetting agents;  
[A.A.C. R18-2-607.B]

- (8) Any other method as proposed by the Permittee and approved by the Director.

[A.A.C. R18-2-306.A.3.c]

- (9) Operate mineral tailings piles by taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean wetting, chemical stabilization, revegetation or such other measures as are approved by the Director.

[A.A.C R18-2-608]

2. Air Pollution Control Requirements

Haul Roads and Storage Piles

Maintaining sufficient moisture, gravel application, paving, sweeping, or an equivalent control, shall be used to control visible emissions from haul roads and storage piles.

[A.A.C. R18-2-306.A.2 and -331.A.3.d]

[Material Permit Condition is indicated by underline and italics]

3. Monitoring and Recordkeeping, and Reporting Requirements

- a. The Permittee shall maintain records of the dates on which any of the activities listed in Conditions XIV.B.1.c.(1) through XIV.B.1.c.(9) above were performed and the control measures that were adopted.

[A.A.C. R18-2-306.A.3.c]

b. Opacity Monitoring Requirements

- (1) The certified EPA Reference Method 9 observer shall conduct a monthly visual survey of visible emissions from the fugitive dust sources. The Permittee shall keep a record of the name of the observer, the date and location on which the observation was made, and the results of the observation.

- (2) If the observer sees a visible emission from a fugitive dust source that on an instantaneous basis appears to exceed applicable opacity standard, then the observer shall, if practicable, take a six-minute EPA Reference Method 9 observation of the visible emission.

- (a) If the six-minute opacity of the visible emission is less than or equal to applicable opacity standard, the observer shall make a record of the following:

- (i) Location, date, and time of the observation; and  
(ii) The results of the EPA Reference Method 9 observation.

- (b) If the six-minute opacity of the visible emission exceeds applicable opacity standard, then the Permittee shall do the following:

- (i) Adjust or repair the controls or equipment to reduce opacity to below the applicable standard; and
- (ii) Report it as an excess emission under Section XII.A of Attachment "A".

[A.A.C. R18-2-306.A.3.c, -310.01]

4. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-604.A & .B, -605, -606, -607, -608, -612, -614, and -702.B.3.

## **XV. MOBILE SOURCE REQUIREMENTS**

### **A. Applicability**

The requirements of this Section are applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or agricultural equipment used in normal farm operations. Mobile sources shall not include portable sources as defined in A.A.C. R18-2-101.108.

[A.A.C. R18-2-801.A]

### **B. Particulate Matter and Opacity**

#### **1. Emission Limitations/Standards**

##### **a. Off-Road Machinery**

The Permittee shall not cause, allow, or permit to be emitted into the atmosphere from any off-road machinery, smoke for any period greater than ten consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes. Off-road machinery shall include trucks, graders, scrapers, rollers, and other construction and mining machinery not normally driven on a completed public roadway.

[A.A.C. R18-2-802.A and .B]

##### **b. Roadway and Site Cleaning Machinery**

- (1) The Permittee shall not cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than ten consecutive seconds, the opacity of which exceeds 40 percent. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

[A.A.C. R18-2-804.A]

- (2) The Permittee shall take reasonable precautions, such as the use of dust suppressants, before the cleaning of a site, roadway, or alley. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by

other means.

[A.A.C. R18-2-804.B]

- c. Unless otherwise specified, no mobile source shall emit smoke or dust the opacity of which exceeds 40 percent.

[A.A.C. R18-2-801.B]

2. Recordkeeping Requirement

[A.A.C. R18-2-306.A.3.c]

The Permittee shall keep a record of all emissions related maintenance activities performed on the Permittee's mobile sources stationed at the facility as per manufacturer's specifications.

3. Permit Shield

[A.A.C. R18-2-325]

Compliance with this Section shall be deemed compliance with A.A.C. R18-2-801, -802.A, -804.A and B.

## **XVI. OTHER PERIODIC ACTIVITIES**

### **A. Abrasive Blasting**

1. Particulate Matter and Opacity

a. Emission Limitations/Standards

[A.A.C. R18-2-726]

The Permittee shall not cause or allow sandblasting or other abrasive blasting without minimizing dust emissions to the atmosphere through the use of good modern practices. Good modern practices include:

- (1) Wet blasting;
- (2) Slag-based abrasive material
- (3) Effective enclosures with necessary dust collecting equipment;  
or
- (4) Any other method approved by the Director.

b. Opacity

[A.A.C. R18-2-702.B.3]

The Permittee shall not cause, allow or permit visible emissions from sandblasting or other abrasive blasting operations in excess of 20 percent opacity, as measured by EPA Reference Method 9.

2. Monitoring and Recordkeeping Requirement

[A.A.C. R18-2-306.A.3.c]

Each time an abrasive blasting project is conducted, the Permittee shall make a record of the following:

- a. The date the project was conducted;

- b. The duration of the project; and
  - c. Type of control measures employed.
3. Permit Shield

[A.A.C.R18-2-325]

Compliance with this Section shall be deemed compliance with the requirements of A.A.C. R18-2-702.B.3 and -726.

**B. Use of Paints**

1. Volatile Organic Compounds

a. Emission Limitations/Standards

While performing spray painting operations, the Permittee shall comply with the following requirements:

- (1) The Permittee shall not conduct or cause to be conducted any spray painting operation without minimizing organic solvent emissions. Such operations, other than architectural coating and spot painting, shall be conducted in an enclosed area equipped with controls containing no less than 96 percent of the overspray.  
[A.A.C.R18-2-727.A]

- (2) The Permittee or their designated contractor shall not either:

- (a) Employ, apply, evaporate, or dry any architectural coating containing photochemically reactive solvents for industrial or commercial purposes; or
- (b) Thin or dilute any architectural coating with a photochemically reactive solvent.

[A.A.C.R18-2-727.B]

- (3) For the purposes of Condition XVI.B.1.a.(2), a photochemically reactive solvent shall be any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified in Conditions XVI.B.1.a.(3)(a) through XVI.B.1.a.(3)(c) below, or which exceeds any of the following percentage composition limitations, referred to the total volume of solvent:

[A.A.C.R18-2-727.C]

- (a) A combination of the following types of compounds having an olefinic or cyclo-olefinic type of unsaturation-hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones: 5 percent.
- (b) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 percent.
- (c) A combination of ethylbenzene, ketones having

branched hydrocarbon structures, trichloroethylene or toluene: 20 percent.

- (4) Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the groups of organic compounds described in Conditions XVI.B.1.a.(3)(a) through XVI.B.1.a.(3)(c) above, it shall be considered to be a member of the group having the least allowable percent of the total volume of solvents.

[A.A.C.R18-2-727.D]

b. Monitoring and Recordkeeping Requirement

[A.A.C. R18-2-306.A.3.c]

- (1) Each time a spray painting project is conducted, the Permittee shall make a record of the following:
- (a) The date the project was conducted;
  - (b) The duration of the project;
  - (c) Type of control measures employed;
  - (d) Material Safety Data Sheets for all paints and solvents used in the project; and
  - (e) The amount of paint consumed during the project.
- (2) Architectural coating and spot painting projects shall be exempt from the recordkeeping requirements of Condition XVI.B.1.b(1) above.

c. Permit Shield

[A.A.C.R18-2-325]

Compliance with this Section shall be deemed compliance with the requirements of A.A.C.R18-2-727.

2. Opacity

a. Emission Limitation/Standard

The Permittee shall not cause, allow or permit visible emissions from painting operations in excess of 20 percent opacity, as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.B.3]

b. Permit Shield

[A.A.C.R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with A.A.C.R18-2-702.B.3.

**C. Demolition/Renovation - Hazardous Air Pollutants**

1. Emission Limitation/Standard

The Permittee shall comply with all applicable requirements of 40 CFR 61 Subpart M (National Emissions Standards for Hazardous Air Pollutants - Asbestos).

2. Monitoring and Recordkeeping Requirement

[A.A.C. R18-2-306.A.3.C]

The Permittee shall keep all required records in a file. The required records shall include the "NESHAP- Notification for Renovation and Demolition Activities" form and all supporting documents.

3. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R18-2-1101.A.8.

**XVII. REQUIREMENTS FOR ALTERNATE OPERATING SCENARIOS FOR CURRENT OPERATIONS**

**A. Applicability**

This Section is applicable to the equipment related to the alternate operating scenarios (AOSs) for current operations listed in Table C-20: Operation 016 – VLE Pilot Plant and Laboratory, Table C-21: AOS 1 – Morenci Concentrator Crushing Operations, Table C-22: AOS 2 – Morenci Concentrator Bulk Flotation Operations, Table C-23: AOS 3 – Morenci Concentrator Molybdenum Flotation and Concentrate Processing Operations, and Table C-24: AOS 4 – Scrubber Use Prior to the Operation of the Metcalf Concentrator in the Equipment List, Attachment "C" of this Permit.

**B. Alternate Operating Scenarios**

Various AOSs are described below:

1. AOS 1

[A.A.C. R18-2-306.A.11 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

*The Permittee may operate Process #s 016-357, 016-358, 016-359, 016-360, 016-361, 016-362, and 016-305 in Table C-20: Operation 016 – VLE Pilot Plant and Laboratory and Process #s 002-033, 002-034, 002-035, 002-036, 002-326, 002-038, 002-039, 002-040, and 003-084 in Table C-21: AOS 1 – Morenci Concentrator Crushing Operations in the Equipment List, Attachment "C" of this Permit only when Process #s 002-033, 002-034, 002-035, 002-036, 002-326, 002-311, 002-312, 002-313, 002-314, 002-315, 002-316, 002-038, 002-039, 002-040 in Table C-3: Operation 002 – Morenci Concentrator and Process #003-317 in Table C-5: Operation 003 – Metcalf MFL Plant Crushing Operations in the Equipment List, Attachment "C" of this Permit are not operating.*

2. AOS 2

[A.A.C. R18-2-306.A.11 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

The Permittee may operate Process #002-352 in Table C-22: AOS 2 – Morenci Concentrator Bulk Flotation Operations in the Equipment List, Attachment “C” of this Permit only when Process #002-321 in Table C-3: Operation 002 – Morenci Concentrator in the Equipment List, Attachment “C” of this Permit is not operating.

3. AOS 3

[A.A.C. R18-2-306.A.11 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

The Permittee may operate Process #002-245 in Table C-23: AOS 3 – Morenci Concentrator Molybdenum Flotation and Concentrate Processing Operations in the Equipment List, Attachment “C” of this Permit only when Process #s 018-333, 018-334, and 018-336 in Table C-8: Operation 018 – Combined Molybdenum Flotation Plant/Concentrate Processing Operations in the Equipment List, Attachment “C” of this Permit are not operating, except for the 180-day transitional period when Process #s 002-245, 018-333, 018-334, and 018-336 may all operate at the same time.

4. AOS 4

[A.A.C. R18-2-306.A.11 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

The Permittee may operate Process #s 001-018, 003-085, 003-092, and 003-090 in Table C-24: AOS 4 – Scrubber Use Prior to the Operation of the Metcalf Concentrator in the Equipment List, Attachment “C” of this Permit only when Process #s 017-318, 017-280, 017-281, 017-319, 017-283, 017-284, 017-285, 017-286, 017-287, 017-288, 017-289, 017-290, 017-291, 017-292, 017-294, and 017-327 in Table C-7, Operation 017 – Metcalf Concentrator, Process #s 001-299 and 001-300 in Table C-2: Operation 001 – Mine (Material Transfer Operations), and Process #s 003-301, 003-302, 003-304, and 003-303 in Table C-5: Operation 003 – Metcalf MFL Plant Crushing Operations in the Equipment List, Attachment “C” of this Permit are not operating.

5. The Permittee shall begin the permitting term operating according to AOSs 1, 2, 3, and 4 as listed in Conditions XVII.B.1, XVII.B.2, XVII.B.3, and XVII.B.4. The Permittee shall maintain records of the date and time when transitioning out of each AOS.

6. The wet scrubbers associated with Process #s 001-018, 003-084, 003-085, 003-090, and 003-092 may be replaced by the FFDCs associated with Process #s 001-299, 001-300, 003-317, 003-301, 003-302, 003-303, and 003-304 prior to complete transition out of the AOSs. When the replacements occur, the Permittee shall maintain records of the date and time of the replacement and the FFDCs shall comply with the applicable requirements listed in Conditions III.B, IV.B, and IV.C.

C. For equipment subject to the standards of performance for existing nonferrous metals industry sources (equipment identified as “No” in Column 8 of Table C-21: AOS 1 – Morenci Concentrator Crushing Operations, Table C-22: AOS 2 – Morenci Concentrator Bulk Flotation Operations, Table C-23: AOS 3 – Morenci Concentrator Molybdenum Flotation and Concentrate Processing Operations, and Table C-24: AOS 4 – Scrubber Use Prior to the Operation of the Metcalf Concentrator in the Equipment List, Attachment “C” of this Permit) the Permittee shall comply with the following requirements for control of Particulate Matter and Opacity:

1. Emission Limitations/Standards

- a. The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere from any of the equipment in any one hour in total quantities in excess of the amount calculated by the following equations:

- (1) For process weight rates of 60,000 lb/hr or less:

$$E = 4.10P^{0.67}$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour; and

P = the process weight rate in tons-mass per hour.

- (2) For process weight rates greater than 60,000 lb/hr:

$$E = 55.0P^{0.11} - 40$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour; and

P = the process weight rate in tons-mass per hour.

[A.A.C. R18-2-721.B.2]

- b. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-721.D]

- c. Voluntarily Accepted Limits

[Material permit conditions are indicated by underline and italics]

- (1) *The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the wet scrubbers listed in Condition XVII.C.2.a to exceed 0.01 gr/dscf.*

[A.A.C. R18-2-306.01.A and -331.A.3.a]

- (2) *The Permittee shall not allow the emissions of PM and PM<sub>10</sub> from the FFDCs listed in Condition XVII.C.2.b to exceed 0.002 gr/dscf and 0.001 gr/dscf, respectively.*

[A.A.C. R18-2-306.01.A and -331.A.3.a]

- d. Opacity Standards

[A.A.C. R18-2-702.B.3]

The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from any point source, to exceed 20 percent.

2. Air Pollution Control Requirements

]

- a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the wet scrubbers associated with Process #s 001-018 and 003-090 in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.

[A.A.C.R18-2-306.A.2 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- b. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the FFDCs associated with Process #s 002-035 and 002-036 in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.

[A.A.C.R18-2-306.A.2 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- c. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the FFDCs associated with Process #s 002-033 and 002-034 in a manner consistent with good air pollution control practice for minimizing particulate matter emissions. These FFDCs shall vent inside the Morenci Concentrator Building.

[A.A.C.R18-2-306.A.2 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- d. At all times, including periods of startup, shutdown, and malfunction, Permittee shall, to the extent practicable, maintain and operate the FFDCs associated with Process #s 002-038, 002-039, and 002-326 in a manner consistent with good air pollution control practice for minimizing particulate matter emissions. These FFDCs shall vent indoors.

[A.A.C.R18-2-306.A.2 and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

- e. At all times, including periods of startup, shutdown, and malfunction, Permittee shall, to the extent practicable, maintain and operate the FFDC associated with Process #002-040 in a manner consistent with good air pollution control practice for minimizing particulate matter emissions. These FFDCs shall vent inside into the Fine Ore Storage Bin.

[A.A.C.R18-2-306.A.2 and, -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping, and Reporting Requirements

- a. Daily Monitoring Requirements

[A.A.C. R18-2-721.F]

The Permittee shall record the daily process rate and hours of operation of all material handling facilities.

- b. Flow Rate and Pressure Drop Monitoring for the Wet Scrubbers listed in Condition XVII.C.2.a

- (1) The Permittee shall calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the scrubber associated

with the emission point. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 250$  Pascals ( $\pm 1$  inch water) gauge pressure and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

[A.A.C. R18-2-331.A.3.c]

[Material permit conditions are indicated by underline and italics]

- (2) The Permittee shall calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to the scrubber associated with the emission point. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 5$  percent of the design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

[A.A.C. R18-2-331.A.3.c]

[Material permit conditions are indicated by underline and italics]

c. Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for all emission units as per Condition I.D.

4. Performance Testing Requirements

[A.A.C. R18-2-306.A.3.c and -312]

- a. Unless the scrubbers are replaced with new FARR dust collectors within 2 years of permit issuance, the Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stack of the wet scrubber associated with process #001-018 listed in Condition XVII.C.2.a twice during the permit term and shall conduct performance tests for PM and PM<sub>10</sub> on the stack of the wet scrubber associated with process #003-090 listed in Condition XVII.C.2.a once during the permit term. The performance test shall be used to demonstrate compliance with the limits in Condition XVII.C.1.c(1).
- b. If the scrubbers are operated for more than 2 years, the Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stacks of the wet scrubbers associated with process #001-018 and 003-090 listed in Condition XVII.C.2.a once during the permit term. The performance test shall be used to demonstrate compliance with the limits in Condition XVII.C.1.c(1).

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

5. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the following requirements as of the date of issuance of this permit: A.A.C. R18-

- D. For equipment subject to the New Source Performance Standards (equipment identified as "Yes" in Column 8 of Table C-20: Operation 016 – VLE Pilot Plant and Laboratory, Table C-21: AOS 1 – Morenci Concentrator Crushing Operations, and Table C-24: AOS 4 – Scrubber Use Prior to the Operation of the Metcalf Concentrator in the Equipment List, Attachment "C" of this Permit) the Permittee shall comply with the following requirements for control of emissions of Particulate Matter and Opacity:

1. Emission Limitations/Standards

- a. The Permittee shall not cause to be discharged into the atmosphere from an affected facility any stack emissions that contain PM in excess of 0.05 grams per dry standard cubic meter (0.02 grains/dscf).

[40 CFR 60.382(a)(1)]

- b. Voluntarily Accepted Limits

[A.A.C. R18-2-306.01.A and -331.A.3.a]

[Material permit conditions are indicated by underline and italics]

*The Permittee shall not allow the emissions of PM or PM<sub>10</sub> from the wet scrubbers listed in Condition XVII.D.2 to exceed 0.01 gr/dscf.*

- c. Opacity Standards

- (1) *The Permittee shall not cause to be discharged into the atmosphere any stack emissions that exhibit greater than 7 percent opacity, unless the stack emissions are discharged from a wet scrubbing emission control device.*

[40 CFR 60.382(a)(2) and A.A.C. R18-2-331.A.3.f]

[Material permit conditions are indicated by underline and italics]

- (2) *The Permittee shall not cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10 percent opacity.*

[40 CFR 60.382(b) and A.A.C. R18-2-331.A.3.f]

[Material permit conditions are indicated by underline and italics]

2. Air Pollution Control Requirements

[40 CFR 60.11(d) and A.A.C. R18-2-331.A.3.e]

[Material permit conditions are indicated by underline and italics]

*At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the wet scrubbers associated with Process #s 003-084, 003-085, and 003-092 in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.*

3. Monitoring, Recordkeeping, and Reporting Requirements

- a. Flow Rate and Pressure Drop Monitoring for the Wet Scrubbers listed in Condition XVII.D.2

- (1) *The Permittee shall calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the scrubber associated*

with the emission point. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 250$  Pascals ( $\pm 1$  inch water) gauge pressure and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

[40 CFR 60.384 (a) and A.A.C. R18-2-331.A.3.c]

[Material permit conditions are indicated by underline and italics]

- (2) The Permittee shall, calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to the scrubber associated with the emission point. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 5$  percent of the design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

[40 CFR 60.384 (b) and A.A.C. R18-2-331.A.3.c]

[Material permit conditions are indicated by underline and italics]

- b. Semi-annual Reporting Requirement for the Wet Scrubber listed in Condition XVII.D.2

[40 CFR 60.385(c), (d)]

The Permittee shall submit to the Director semi-annual reports of occurrences when the measurements of the scrubber pressure loss (or gain) or liquid flow rate differ by more than  $\pm 30$  percent from the average obtained during the most recent performance test. These reports shall be postmarked within 30 days following the end of second and fourth quarter.

- c. Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for all emission units as per Condition I.D.

4. Performance Testing Requirements

[40 CFR 60.8, 386(a),(b)(1), A.A.C. R18-2-306.A.3.c, and 312]

- a. Unless the scrubbers are replaced with new FARR dust collectors within 2 years of permit issuance, the Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stacks of wet scrubbers controlling emission points associated with process #s 003-084, 003-085 and 003-092 listed in Condition XVII.D.2 twice during the permit term. The performance test shall be used to demonstrate compliance with the limits in Condition XVII.D.1.a and XVII.D.1.b.
- b. If the scrubbers are operated for more than 2 years, the Permittee shall conduct performance tests for PM and PM<sub>10</sub> on the stacks of wet scrubbers controlling emission points associated with process #s 003-084, 003-085 and 003-092 listed in Condition XVII.D.2 once during the permit term. The performance test shall be used to demonstrate compliance with the limits in Condition XVII.D.1.a and XVII.D.1.b.

EPA Reference Method 5 in 40 CFR 60, Appendix A and EPA Reference Method 202 specified in 40 CFR 51, Appendix M shall be used to determine emissions of PM. All particulate matter measured by the above reference method

can be considered to have an aerodynamic diameter less than 10 microns or EPA Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M can be used to determine emissions of PM<sub>10</sub>.

5. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the following requirements as of the date of issuance of this permit: 40 CFR 60.382(a)(1), (a)(2), (b), 60.384(a), (b), 385(c), (d), 386(a), (b)(1), and A.A.C. R18-2-901(43).

- E. For equipment subject to the Standards of Performance for Unclassified Sources (equipment identified as "No" in the NSPS Applicability Column of Table C-20: Operation 016 – VLE Pilot Plant and Laboratory in the Equipment List, Attachment "C" of this Permit) the Permittee shall comply with the following requirements for control of emissions of Particulate Matter and Opacity:

1. Emission Limitations/Standards

- a. The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere from any of the equipment in any one hour in total quantities in excess of the amount calculated by the following equation: [A.A.C. R-18-2-730.A.1.b]

$$E = 4.10P^{0.67}$$

Where:

E = the maximum allowable particulate matter emissions rate in pounds-mass per hour; and

P = the process weight rate in tons-mass per hour.

- b. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R-18-2-730.B]

- c. Opacity

[A.A.C-R18-2-702.B.3]

The Permittee shall not cause, allow, or permit the opacity of any plume or effluent, from any point source, to exceed 20 percent.

2. Monitoring, Recordkeeping, and Reporting Requirements

Opacity Monitoring Requirements

[A.A.C. R18-2-306.A.3.c]

The Permittee shall conduct periodic opacity monitoring for all emission units as per Condition I.D.

3. Permit Shield

[A.A.C. R18-2-325]

Compliance with the conditions of this Section shall be deemed compliance with the requirements of A.A.C. R18-2-702.B.3, -730.A.1, and B.

## **XVIII. EMERGENCY PROPANE FIRED ENGINES**

### **A. Applicability**

This Section is applicable to the reciprocating internal combustion engines (RICE) listed in Table C-25: Operation 021- Propane Fired Engines, Equipment List, Attachment "C".

### **B. RICE Subject to A.A.C.R18-2-719.**

#### **1. Applicability**

This Section is applicable to the RICE subject to the State Standards of Performance for Existing Stationary Rotating Machinery (Equipment identified as "No" in Column 8, Table C-25: Operation 021- Propane Fired Engines, Equipment List, Attachment "C").

#### **2. Operating Requirements**

[A.A.C.R18-2-306.A.2]

The Permittee shall only fire propane in the RICE.

#### **3. Emission Limitation and Standards**

##### **a. Particulate Matter**

- (1) The Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel in excess of the amounts calculated by the following equation:

[A.A.C.R18-2-719.C.1]

$$E = 1.02Q^{0.769}$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

Q = the heat input in million BTU per hour.

- (2) For the purpose of this Section, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all operating fuel-burning units on a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

[A.A.C. R18-2-719.B]

##### **b. Opacity**

[A.A.C.R18-2-719.E]

The Permittee shall not cause, allow or permit to be emitted into the atmosphere from the engines smoke for any period greater than ten

consecutive seconds, which exceeds 40 percent opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

4. Monitoring, Reporting, and Recordkeeping

[A.A.C. R18-2-306.A.3.c]

The Permittee shall maintain a record of the daily lower heating value of the fuel fired in each engine. This may be accomplished by maintaining on record a copy of that part of the contract with the vendor that specifies the lower heating value of the fuel.

C. RICE subject to New Source Performance Standards, Subpart JJJJ

1. Applicability

This Section is applicable to the RICE subject to the Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (Equipment identified as "Yes" in Column 8, Table C-25: Operation 021- Propane Fired Engines, Equipment List, Attachment "C").

2. Operating Requirements

- a. The Permittee shall operate and maintain the stationary ICE such that it complies with the emission standards listed in Condition XVIII.C.3 below over the entire life of the engine.

[40 CFR 60.4234]

- b. The Permittee, for the engines that do not meet the standards applicable to non-emergency engines, shall install non-resettable hour meters.

[40 CFR 60.4237(c)]

- c. The Permittee shall either operate and maintain the engine and control device according to manufacturer's emission-related written instructions or keep a maintenance plan and, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution practice for minimizing emissions.

[40 CFR 60.4243(a)(1) and (2)]

- d. The Permittee may operate the emergency stationary RICE for the purposes of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. The Permittee shall petition the Administrator and the Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year.

[40 CFR 60.4243(d)(2)]

- e. The Permittee may operate the emergency stationary RICE up to 50

hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 CFR 60.4243(d)(2)]

- f. The Permittee is prohibited from operating the emergency RICE for any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year.

[40 CFR 60.4243(d)]

### 3. Emission Limitations and Standards

- a. Engines with a maximum power less than or equal to 25 hp manufactured between July 1, 2008 and December 31, 2010

[40 CFR 60.4231(a)(3) and 4233(a)]

(1) Carbon Monoxide (CO)

The Permittee shall limit the emissions of CO from the engine to 610 g/kW-hr

(2) Nitrogen Oxides (NO<sub>x</sub>) and Volatile Organic Compounds (VOCs)

The Permittee shall limit the combined emissions of NO<sub>x</sub> and VOCs from the engine to 12.1 g/kW-hr

- b. Engines with a maximum power less than or equal to 25 hp manufactured January 1, 2011 or later

[40 CFR 60.4231(a)(4) and 4233(a)]

(1) Carbon Monoxide (CO)

The Permittee shall limit the emissions of CO from the RICE to 610 g/kW-hr

(2) Nitrogen Oxides (NO<sub>x</sub>) and Volatile Organic Compounds (VOCs)

The Permittee shall limit the combined emissions of NO<sub>x</sub> and VOCs from the RICE to 8.0 g/kW-hr

- c. Engines with a maximum power greater than 25 hp that are rich burn engines and use liquefied petroleum gas (LPG)

[40 CFR 60.4231(c) and 4233(c)]

(1) Carbon Monoxide (CO)

The Permittee shall limit the emissions of CO from the RICE to 519 g/kW-hr

(2) Nitrogen Oxides (NO<sub>x</sub>) and Volatile Organic Compounds

(VOCs)

The Permittee shall limit the combined emissions of NO<sub>x</sub> and VOCs from the RICE to 13.4 g/kW-hr

4. Recordkeeping and Reporting Requirements

a. For each RICE, the Permittee shall maintain records of the following:

- (1) Maintenance conducted; [40 CFR 60.4245(a)(2)]
- (2) If the RICE is operated in a certified manner, documentation from the manufacturer that the engine is certified to meet the emission standards in Condition XVIII.C.3, as applicable; and [40 CFR 60.4245(a)(3)]
- (3) If the RICE is operated in a non-certified manner, documentation that the engine meets the emission standards in Condition XVIII.C.3, as applicable. [40 CFR 60.4245(a)(4)]

b. For the emergency RICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the Permittee shall keep records of the hours of operation of the RICE that is recorded through the non-resettable hour meter. The Permittee shall document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. [40 CFR 60.4245(b)]

**D. RICE Subject to 40 CFR 63, Subpart ZZZZ**

1. Applicability

This Section is applicable to the RICE subject to the National Standards for Hazardous Air Pollutants (Equipment identified as "Yes" in Column 9, Table C-25: Operation 021- Propane Fired Engines, Equipment List, Attachment "C").

2. Compliance Requirements

[40 CFR 63.6590(c)]

The Permittee, for the emergency SI RICE subject to NSPS Subpart JJJJ shall comply with the requirements of NESHAP ZZZZ by meeting requirements of NSPS Subpart JJJJ.

**ATTACHMENT "C": EQUIPMENT LIST**  
**Air Quality Control Permit No. 57883 for**  
**Freeport-McMoRan Morenci Inc.**

Only the transfer points of conveyor belts identified as "Yes" in the NSPS applicability column are subject to NSPS Subpart LL.  
Pollution control devices are not affected facilities subject to regulatory requirements; they control affected facilities subject to regulatory requirements.

TABLE C-1 OPERATION 001 - CRUSHING OPERATIONS IN THE MINE							
Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
002	Dump Pocket Feed Hopper 1	TBD	TBD	TBD	TBD	TBD	No
	Dump Pocket Feed Hopper 2	TBD	TBD	TBD	TBD	TBD	No
	Dump Pocket Feed Hopper 3	TBD	TBD	TBD	TBD	TBD	No
186	Apron Feeder AF1	NA	NA	NA	NA	NA	No
	In-Pit Crusher 1	Traylor by Fuller	60" Type 'C'	87-2037-720-1	1988	7,500 tph	Yes
353	In-Pit Crusher 1FFDC	FARR	GS36/30	TBD	TBD	11,300 dsfcm	Yes
	In-Pit Crusher 1	Traylor by Fuller	60" Type 'C'	87-2037-720-1	1988	7,500 tph	Yes
	Rock Hammer 1	Allied	3418	2074	2008	NA	No
	Discharge Conveyor P1	FMMI	TBD x 96"W	Custom Fabricated	1988	7500 tph	No
187	Apron Feeder AF2	NA	NA	NA	NA	NA	No
	In-Pit Crusher 2	Traylor by Fuller	60" Type 'C'	87-2037-720-2	1988	7,500 tph	Yes

TABLE G-1 OPERATION 001 - CRUSHING OPERATIONS IN THE MINE							
Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
006	In-Pit Crusher 2FFDC	FARR	GS32	213052	2006	12,800 dscfm	Yes
	In-Pit Crusher 2	Traylor by Fuller	60" Type 'C'	87-2037-720-2	1988	7,500 tph	Yes
	Rock Hammer 2	Allied	3418	710411	2008	NA	No
	Discharge Conveyor DC2	FMMI	637'L x 96"W	Custom Fabricated	1988	7500 tph	No
249	Apron Feeder AF3	NA	NA	NA	NA	NA	No
	In-Pit Crusher 3	Metso	60-110 Gyratory Crusher	251-CRU-310	2009	6750 tph	Yes
250	In-Pit Crusher 3 and FB3/P11 FFDC	Farr	GS 24/20	251-DCD-335	2008	12,000 dscfm	Yes
	In-Pit Crusher 3	Metso	60-110 Gyratory Crusher	251-CRU-310	2009	6750 tph	Yes
	Feeder Belt FB3	Continental	7200-96	251-FDA-301	2009	6,750 tph	No
	Discharge Conveyor P11	Continental	7,200 tph-72"	251-CVB-316	2009	7,200 tph	No
256	AOS Crushers	NA	NA	NA	NA	NA	Yes/No
	FFDCs for AOS Crushers	NA	NA	NA	NA	NA	Yes/No
	AOS Conveyor Belts	NA	NA	NA	NA	NA	Yes/No
	FFDCs for AOS Conveyor Belts	NA	NA	NA	NA	NA	Yes/No

TABLE C-2 OPERATION 001 - MINE (Material Transfer Operations)

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
354	P1/P13 FFDC	FARR	GS16 BV	TBD	TBD	6,700 dscfm	No
	Discharge Conveyor P1	FMMI	TBD x 96" W	Custom Fabricated	1988	7,500 tph	No
	Conveyor Belt P13	TBD	TBD	TBD	TBD	5,400 tph	No
355	P13/P14 and P13/R9 FFDC	FARR	GS36/30	TBD	TBD	13,400 dscfm	No
	Conveyor Belt P13	TBD	TBD	TBD	TBD	5,400 tph	No
	Conveyor Belt P14	TBD	TBD	TBD	TBD	5,400 tph	No
	Conveyor Belt R9	FMMI	1,300' L x 54" W	839020	2006	7,500 tph	No
356	Conveyor Belt P14-Transfer to IOS 1	TBD	TBD	TBD	TBD	5,400 tph	No
251	P11/P5 and P11/P12 FFDC	FARR	GS-20/16	T 251-CDCD-340	2008	8,300 dscfm	No
	Discharge Conveyor P11	Continental	7,200 tph-72"	251-CVB-316	2009	7,200 tph	No
	Conveyor Belt P12	Continental	7,200 tph-72"	251-CVB-346	2009	7,200 tph	No
	Conveyor Belt P5	FMMI	TBD x 72" W	703490	1988	9,000 tph	No
344	Conveyor Belt P12	Continental	7,200 tph-72"	251-CVB-346	2009	7,200 tph	No
	Conveyor Belt P10	FMMI	4000' L x 54" W	Custom Fabricated 850302	2006	7,500 tph	No
015	P5/P6 FFDC	FARR	GS-20/60	862022004	2009	12,800 dscfm	No
	Conveyor Belt P5	FMMI	TBD x 72" W	703490	1988	9,000 tph	No
	Conveyor Belt P6	FMMI	8,898' L x 60" W	703491	1988	9,000 tph	No

TABLE C-2 OPERATION ONE - MINE (Material Transfer Operations)

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
016	Conveyor Belt P6- (transfer to IOS 1)	FMMI	8,898'L x 60"W	703491	1988	9,000 tph	No
225	DC2/P9 and P9/P10 FFDC	FARR	GS-32	213053	2006	14,600 dscfm	No
	Discharge Conveyor DC2	FMMI	637'L x 96"W	Custom Fabricated	1988	7500 tph	No
	Conveyor Belt P9	FMMI	253'L x 72" W	Custom Fabricated 839009	2006	7,500 tph	No
	Conveyor Belt P10	FMMI	4,000'L x 54" W	Custom Fabricated 850302	2006	7,500 tph	No
226	Conveyor Belt P10 (transfer to IOS 2)	FMMI	4,000'L x 54" W	Custom Fabricated 850302	2006	7,500 tph	No
325	DC2/P5 FFDC	FARR	GS-16	213054	2006	7,300 dscfm	No
	Discharge Conveyor DC2	FMMI	637'L x 96"W	Custom Fabricated	1988	7,500 tph	No
	Conveyor Belt P5	FMMI	TBD x 72" W	Custom Fabricated 703490	1988	9,000 tph	No
323	Portable clean up Conveyor	NA	NA	NA	2010	50 tph	No
299	IOS 1/R1A FFDC	FARR	TBD	TBD	TBD	12,500 dscfm	No
	Reclaim Feeder 1	NICO	FD4486	FD911	1988	2,000 tph	No
	Reclaim Feeder 2	NICO	FD4486	253-FDA-201	1988	2,000 tph	No
	Reclaim Feeder 3	NICO	FD4486	253-FDA-301	1988	2,000 tph	No
	Reclaim Feeder 4	NICO	FD4486	253-FDA-401	1988	2,000 tph	No
	Conveyor Belt R1A	FMMI	1,400' L x 60" W	Custom Fabricated	1988	5,600 tph	No

TABLE C-2 OPERATION 101 - MINE (Material Transfer Operations)

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
300	IOS 1/R1B FFDC	FARR	GS-24/20	TBD	TBD	10,000 DSFCM	No
	Reclaim Feeder 5	NICO	FD4486	253-FDA-501	1988	2,400 TPH	No
	Reclaim Feeder 6	NICO	FD4486	253-FDA-601	1988	2,400 TPH	No
	Reclaim Feeder 7	NICO	FD4486	253-FDA-701	1988	2,400 TPH	No
	Conveyor Belt R1B	FMMI	1,400' L x 60" W	Custom Fabricated	1988	5,600 TPH	No
272	R1A and R1B/ R7 FFDC	FARR	GS-6	TBD	TBD	3,000 dscfm	No
	Conveyor Belt R1A	FMMI	1400'L x 60" W	Custom Fabricated	1988	5,600 tph	No
	Conveyor Belt R1B	FMMI	1,400'L x 60" W	Custom Fabricated	1988	5,600 tph	No
	Conveyor Belt R7	FMMI	1,162'L x 60" W	Custom Fabricated	1988	5,500 tph	No
277	R1A and R1B/ R2 Bag Collector 1	Mikropul	49S-8-20-TR-B	200077H8GA	2001	3,000 dscfm	No
	Conveyor Belt R1A	FMMI	1400'L x 60" W	Custom Fabricated	1988	5,600 tph	No
	Conveyor Belt R1B	FMMI	1,400'L x 60" W	Custom Fabricated	1988	5,600 tph	No
	Conveyor Belt R2	FMMI	1,755'L x 60" W	Custom Fabricated	1988	5,600 tph	No
278	R2/R11 FFDC	FARR	GS-6	TBD	TBD	3,000 dscfm	No
	Conveyor Belt R2	FMMI	1,755'L x 60" W	Custom Fabricated	1988	5,600 tph	No
	Conveyor Belt R11	TBD	TBD	TBD	TBD	7,200 tph	No

TABLE C-2. OPERATION 001 - MINE (Material Transfer Operations)

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
228	IOS 2/R8 FFDC	FARR	GS-24	213056	2006	12,800 dscfm	No
	Apron Feeder 1	TBD	TBD	TBD	TBD	TBD	No
	Apron Feeder 2	TBD	TBD	TBD	TBD	TBD	No
	Conveyor Belt R8	FMMI	2,000'L x 54" W	839018	2006	7,500 tph	No
229	R8/R9 FFDC	FARR	GS-16	213057	2006	7,300 dscfm	No
	Conveyor Belt R8	FMMI	2,000'L x 54" W	839018	2006	7,500 tph	No
	Conveyor Belt R9	FMMI	1,300' L x 54" W	839020	2006	7,500 tph	No

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
022	R7/1A and 1B FFDC	TBD	TBD	DC-059-R7	TBD	10,000 cfm	No
	Conveyor Belt R7	FMMI	1,162'L x 60" W	Custom Fabricated	1988	5,500 tph	No
	Coarse Ore Splitter	FMMI	Custom Fabricated	Custom Fabricated	1941	5,500 tph	No
	Conveyor Belt 1A	FMMI	820'L x 54" W	Custom Fabricated	1988	2,750 tph	No
	Conveyor Belt 1B	FMMI	820'L x 54" W	Custom Fabricated	1988	2,750 tph	No
023	1A/COSB FFDC 1	TBD	TBD	DC-059-CO-1	TBD	3,500 cfm	No
	1A/COSB FFDC 2	TBD	TBD	DC-059-CO-2	TBD	3,500 cfm	No
	1A/COSB FFDC 3	TBD	TBD	DC-059-CO-3	TBD	3,500 cfm	No
	1A/COSB FFDC 4	TBD	TBD	DC-059-CO-4	TBD	3,500 cfm	No
	1A/COSB FFDC 5	TBD	TBD	DC-059-CO-5	TBD	3,500 cfm	No
	1A/COSB FFDC 6	TBD	TBD	DC-059-CO-6	TBD	3,500 cfm	No
	1A/COSB FFDC 7	TBD	TBD	DC-059-CO-7	TBD	3,500 cfm	No
	1A/COSB FFDC 8	TBD	TBD	DC-059-CO-8	TBD	3,500 cfm	No
	1A/COSB FFDC 9	TBD	TBD	DC-059-CO-9	TBD	3,500 cfm	No
	Conveyor Belt 1A	FMMI	820'L x 54" W	Custom Fabricated	1988	2,750 tph	No
	Coarse Ore Storage Bin (COSB)	TBD	TBD	TBD	TBD	TBD	No

TABLE C-3 OPERATION 012 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
024	1B/COSB FFDC 1	TBD	TBD	DC-059-CO-10	TBD	3,500 cfm	No
	1B/COSB FFDC 2	TBD	TBD	DC-059-CO-11	TBD	3,500 cfm	No
	1B/COSB FFDC 3	TBD	TBD	DC-059-CO-12	TBD	3,500 cfm	No
	1B/COSB FFDC 4	TBD	TBD	DC-059-CO-13	TBD	3,500 cfm	No
	1B/COSB FFDC 5	TBD	TBD	DC-059-CO-14	TBD	3,500 cfm	No
	1B/COSB FFDC 6	TBD	TBD	DC-059-CO-15	TBD	3,500 cfm	No
	1B/COSB FFDC 7	TBD	TBD	DC-059-CO-16	TBD	3,500 cfm	No
	1B/COSB FFDC 8	TBD	TBD	DC-059-CO-17	TBD	3,500 cfm	No
	1B/COSB FFDC 9	TBD	TBD	DC-059-CO-18	TBD	3,500 cfm	No
	Conveyor Belt 1B	FMMI	820'L x 54" W	Custom Fabricated	1988	2,750 tph	No
	Coarse Ore Storage Bin (COSB)	TBD	TBD	TBD	TBD	TBD	No
025	COSB/AFA/ 2A FFDC	TBD	TBD	DC-059-2A	TBD	19,500 cfm	No
	Apron Feeders, A1 through A4 (AFA)	Stevens Adams	25'L x 60" W each	NA	1941	400 tph each	No
	Conveyor Belt 2A	FMMI	328'L x 60" W	Custom Fabricated	1941	1,300 tph	No
026	COSB/AFB/2B FFDC	TBD	TBD	DC-059-2B	TBD	19,500 cfm	No
	Apron Feeders, B1 through B4 (AFB)	Stevens Adams	25'L x 60" W each	NA	1941	400 tph each	No
	Conveyor Belt 2B	FMMI	328'L x 60" W	Custom Fabricated	1941	1,300 tph	No

TABLE C-3 OPERATION 02 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
027	COSB/AFC/ 2C FFDC	TBD	TBD	DC-059-2C	TBD	19,500 cfm	No
	Apron Feeders, C1 through C4 (AFC)	Stevens Adams	25'L x 60" W each	NA	1941	400 tph each	No
	Conveyor Belt 2C	FMMI	328'L x 60" W	Custom Fabricated	1941	1,300 tph	No
028	COSB/AFD/ 2D FFDC	TBD	TBD	DC-059-2D	TBD	19,500 cfm	No
	Apron Feeders, D1 through D4 (AFD)	Stevens Adams	25'L x 60" W each	NA	1941	400 tph each	No
	Conveyor Belt 2D	FMMI	328'L x 60" W	Custom Fabricated	1941	1,300 tph	No
029	Fine Crushing Line A FFDC 1	Farr	GS36	NA	2006	26,000 cfm	Yes
	Conveyor Belt 2A	FMMI	328'L x 60" W	Custom Fabricated	1941	1,300 tph	No
	Vibrating Grizzly 1	FMMI	6' L x 16' W	Custom Fabricated	1941	1,300 tph	No
	Secondary Crusher 1	Sandvik	CH 870	TBD	TBD	760 tph	Yes
	Shaker Screen 1AN	WS Tyler	F-600 5'x10'	N/A	1941	286 tph	No
	Shaker Screen 1AS	WS Tyler	F-600 5'x10'	N/A	1941	364 tph	No
	Shaker Screen 1BN	WS Tyler	F-600 5'x10'	N/A	1941	286 tph	No
	Shaker Screen 1BS	WS Tyler	F-600 5'x10'	N/A	1941	364 tph	No
	Tertiary Crusher 1A	Symons	7'	7144	1941	750 tph	No
	Tertiary Crusher 1B	Symons	7'	N/A	1941	750 tph	No

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
033	Fine Crushing Line A FFDC 2	Farr	GS48	NA	2006	13,000 cfm	No
	Conveyor Belt 3	FMMI	TBD' x 54" W	Custom Fabricated	1941	2,600 tph	No
030	Fine Crushing Line B FFDC 1	Farr	GS36	212507	2006	23,700 dscfm	Yes
	Conveyor Belt 2B	FMMI	328'L x 60" W	Custom Fabricated	1941	1,300 tph	No
	Vibrating Grizzly 2	FMMI	6' L x 16'W	Custom Fabricated	1941	1,300 tph	No
	Secondary Crusher 2	Sandvik	CH 870	TBD	TBD	760 tph	Yes
	Shaker Screen 2AN	WS Tyler	F-600 5'x10'	N/A	1941	286 tph	No
	Shaker Screen 2AS	WS Tyler	F-600 5'x10'	N/A	1941	364 tph	No
	Shaker Screen 2BN	WS Tyler	F-600 5'x10'	N/A	1941	286 tph	No
	Shaker Screen 2BS	WS Tyler	F-600 5'x10'	N/A	1941	364 tph	No
	Tertiary Crusher 2A	Symons	7'	N/A	1941	750 tph	No
	Tertiary Crusher 2B	Symons	7'	761E	1941	750 tph	No
034	Fine Crushing Line B FFDC 2	Farr	NA	NA	2006	12,000 cfm	No
	Conveyor Belt 3	FMMI	TBD' x 54" W	Custom Fabricated	1941	2,600 tph	No
031	Fine Crushing Line C FFDC 1	Farr	GS36	212572	2006	23,700 dscfm	Yes
	Conveyor Belt 2C	FMMI	328'L x 60" W	Custom Fabricated	1941	1,300 TPH	No
	Vibrating Grizzly 3	FMMI	6' L x 16'W	Custom Fabricated	1941	1,300tph	No

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
031	Secondary Crusher 3	Sandvik	CH 870	TBD	TBD	760 tph	Yes
	Shaker Screen 3AN	WS Tyler	F-600 5'x10'	N/A	1941	286 tph	No
	Shaker Screen 3AS	WS Tyler	F-600 5'x10'	N/A	1941	364 tph	No
	Shaker Screen 3BN	WS Tyler	F-600 5'x10'	N/A	1941	286 tph	No
	Shaker Screen 3BS	WS Tyler	F-600 5'x10'	N/A	1941	364 tph	No
	Tertiary Crusher 3A	Symons	7'	N/A	1941	750 tph	No
	Tertiary Crusher 3B	Symons	7'	7263	1941	750 tph	No
035	Fine Crushing Line C to 3B to 3 FFDC	Farr	GS24	212577	2006	13,300 dscfm	No
	Conveyor Belt 3B	FMMI	96'L x 54"W	Custom Fabricated	1941	1,300 tph	No
	Conveyor Belt 3	FMMI	TBD x 54"W	Custom Fabricated	1941	2,600 tph	No
036	Fine Crushing Line C to 3B to 3A FFDC	Farr	GS-24	212578	2006	13,300 dscfm	No
	Conveyor Belt 3B	FMMI	96'L x 54" W	Custom Fabricated	1941	1,300 tph	No
	Conveyor Belt 3A	FMMI	TBD' x 54" W	Custom Fabricated	1941	2,600 tph	No
032	Fine Crushing Line D FFDC 1	Farr	GS48	705626	2006	23,700 dscfm	Yes
	Conveyor Belt 2D	FMMI	328'L x 60" W	Custom Fabricated	1941	1,300 TPH	No
	Vibrating Grizzly 4	FMMI	6' L x 16'W	Custom Fabricated	2011	1,300 tph	Yes

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
032	Secondary Crusher 4	Sandvik	CH 870	TBD	2012	760 tph	Yes
	Shaker Screen 4AN	WS Tyler	F-600 5'x10'	N/A	1941	286 tph	No
	Shaker Screen 4AS	WS Tyler	F-600 5'x10'	N/A	1941	364 tph	No
	Shaker Screen 4BN	WS Tyler	F-600 5'x10'	N/A	1941	286 tph	No
	Shaker Screen 4BS	WS Tyler	F-600 5'x10'	N/A	1941	364 tph	No
	Tertiary Crusher 4A	Symons	N/A	N/A	1941	750 tph	No
	Tertiary Crusher 4B	Symons	7'	7263	1941	750 tph	No
326	Fine Crushing Line D FFDC 2	Farr	GS24	212574	2006	13,000 cfm	No
	Conveyor Belt 3A	FMMI	TBD' x 54" W	Custom Fabricated	1941	2,600 tph	No
311	West Transfer Points FFDC	Farr	TBD	TBD	TBD	16,900 dscfm	Yes
	Conveyor Belt 3	FMMI	TBD x 54" W	Custom Fabricated	1941	2,600 tph	No
	West Proportioning Gate 1	TBD	TBD	TBD	TBD	1,750 tph	No
	West RC Feed Conveyor	TBD	TBD	TBD	TBD	2,300 tph	Yes
	West RC Product Conveyor	TBD	TBD	TBD	TBD	2,300 tph	Yes
	West Proportioning Gate 2	TBD	TBD	TBD	TBD	2,300 tph	No
	West Transfer Conveyor	TBD	TBD	TBD	TBD	1,750 tph	Yes
	Conveyor Belt 4	FMMI	147'L x 54" W	Custom Fabricated	1941	2,600 tph	No

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
312	West Surge Bin FFDC	Farr	TBD	TBD	TBD	3,000 dscfm	Yes
	West RC Feed Conveyor	TBD	TBD	TBD	TBD	2,300 tph	Yes
	West Surge Bin	TBD	TBD	TBD	TBD	300 tons	Yes
313	West RC FFDC	Farr	TBD	TBD	TBD	9,300 dscfm	Yes
	West RC Feeder	TBD	TBD	TBD	TBD	2,300 tph	Yes
	West Flop Gate	TBD	TBD	TBD	TBD	2,300 tph	No
	West RC Feed Bin	TBD	TBD	TBD	TBD	TBD	Yes
	West RC	TBD	TBD	TBD	TBD	2,300 tph	Yes
	West RC Product Conveyor	TBD	TBD	TBD	TBD	2,300 tph	Yes
314	East Transfer Points FFDC	Farr	TBD	TBD	TBD	16,900 dscfm	Yes
	Conveyor Belt 3A	FMMI	TBD' x 54" W	Custom Fabricated	1941	2,600 tph	No
	East Proportioning Gate 1	TBD	TBD	TBD	TBD	1,750 tph	No
	East RC Feed Conveyor	TBD	TBD	TBD	TBD	2,300 tph	Yes
	East RC Product Conveyor	TBD	TBD	TBD	TBD	2,300 tph	Yes
	East Proportioning Gate 2	TBD	TBD	TBD	TBD	2,300 tph	No
	East Transfer Conveyor	TBD	TBD	TBD	TBD	550 tph	Yes
	Conveyor Belt 4A	TBD	TBD	TBD	TBD	1,750tph	Yes

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
315	East Surge Bin FFDC	Farr	TBD	TBD	TBD	3,000 dscfm	Yes
	East RC Feed Conveyor	TBD	TBD	TBD	TBD	2,300 tph	Yes
	East Surge Bin	TBD	TBD	TBD	TBD	300 tons	Yes
316	East RC FFDC	Farr	TBD	TBD	TBD	9,300 dscfm	Yes
	East RC Feeder	TBD	TBD	TBD	TBD	2,300 tph	Yes
	East Flop Gate	TBD	TBD	TBD	TBD	2,300 TPH	No
	East RC Feed Bin	TBD	TBD	TBD	TBD	TBD	Yes
	East RC	TBD	TBD	TBD	TBD	2,300 tph	Yes
	East RC Product Conveyor	TBD	TBD	TBD	TBD	2,300 TPH	Yes
038	3/4/5 FFDC	Farr	GS 36	NA	2006	17,700 cfm	No
	Conveyor Belt 3	FMMI	TBD x 54" W	Custom Fabricated	1941	2,600 tph	No
	West Proportioning Gate 1	TBD	TBD	TBD	TBD	1,750 tph	No
	Conveyor Belt 4	FMMI	147' L x 54" W	Custom Fabricated	1941	2,600 tph	No
	Conveyor Belt 5	FMMI	1086' L x 54" W	Custom Fabricated	1941	2,600 tph	No
039	3A/4A/5A FFDC	Farr	GS 36	NA	2006	17,700 cfm	Yes
	Conveyor Belt 3A	FMMI	TBD' x 54" W	Custom Fabricated	1941	2,600 tph	No
	East Proportioning Gate 1	TBD	TBD	TBD	TBD	1,750 tph	No

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
039	Conveyor Belt 4A	TBD	TBD	TBD	TBD	1,750 tph	Yes
	Conveyor Belt 5A	FMMI	TBD x 54" W	Custom Fabricated	1941	2,600 tph	No
040	5A/ FOSB FFDC 1	Farr	NA	DC059-FO-10	2006	3,500 cfm	No
	5A/ FOSB FFDC 2	Farr	NA	DC059-FO-11	2006	3,500 cfm	No
	5A/ FOSB FFDC 3	Farr	NA	DC059-FO-12	2006	3,500 cfm	No
	5A/ FOSB FFDC 4	Farr	NA	DC059-FO-13	2006	3,500 cfm	No
	5A/ FOSB FFDC 5	Farr	NA	DC059-FO-14	2006	3,500 cfm	No
	5A/ FOSB FFDC 6	Farr	NA	DC059-FO-15	2006	3,500 cfm	No
	5A/ FOSB FFDC 7	Farr	NA	DC059-FO-16	2006	3,500 cfm	No
	5A/ FOSB FFDC 8	Farr	NA	DC059-FO-17	2006	3,500 cfm	No
	5A/ FOSB FFDC 9	Farr	NA	DC059-FO-18	2006	3,500 cfm	No
	Conveyor Belt 5A	FMMI	TBD x 54" W	Custom Fabricated	1941	2,600 tph	No
	Fine Ore Storage Bin (FOSB)	TBD	TBD	TBD	TBD	TBD	No
041	5/ FOSB FFDC 1	TBD	TBD	DC059-FO-1	2006	3,500 cfm	No
	5/ FOSB FFDC 2	TBD	TBD	DC059-FO-2	2006	3,500 cfm	No
	5/ FOSB FFDC 3	TBD	TBD	DC059-FO-3	2006	3,500 cfm	No
	5/ FOSB FFDC 4	TBD	TBD	DC059-FO-4	2006	3,500 cfm	No

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
041	5/ FOSB FFDC 5	TBD	TBD	DC059-FO-5	2006	3,500 cfm	No
	5/ FOSB FFDC 6	TBD	TBD	DC059-FO-6	2006	3,500 cfm	No
	5/ FOSB FFDC 7	TBD	TBD	DC059-FO-7	2006	3,500 cfm	No
	5/ FOSB FFDC 8	TBD	TBD	DC059-FO-8	2006	3,500 cfm	No
	5/ FOSB FFDC 9	TBD	TBD	DC059-FO-9	2006	3,500 cfm	No
	Conveyor Belt 5	FMMI	1086'L x 54" W	Custom Fabricated	1941	2,600 tph	No
	Fine Ore Storage Bin (FOSB)	TBD	TBD	TBD	TBD	TBD	No
045	Belt Feeder 1E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 1W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-1	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-1	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 1	TBD	TBD	TBD	TBD	TBD	No
046	Belt Feeder 2E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 2W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-2	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-2	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 2	TBD	TBD	TBD	TBD	TBD	No

TABLE C-3: OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
047	Belt Feeder 3E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 3W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-3	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-3	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 3	TBD	TBD	TBD	TBD	TBD	No
048	Belt Feeder 4E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 4W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-4	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-4	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 4	TBD	TBD	TBD	TBD	TBD	No
049	Belt Feeder 5E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 5W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-5	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-5	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 5	TBD	TBD	TBD	TBD	TBD	No
050	Belt Feeder 6E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No

TABLE C.3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
050	Belt Feeder 6W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-6	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-6	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 6	TBD	TBD	TBD	TBD	TBD	No
051	Belt Feeder 7E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 7W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-7	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-7	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 7	TBD	TBD	TBD	TBD	TBD	No
052	Belt Feeder 8E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 8W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-8	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-8	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 8	TBD	TBD	TBD	TBD	TBD	No
053	Belt Feeder 9E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 9W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
053	Conveyor 6-9	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-9	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 9	TBD	TBD	TBD	TBD	TBD	No
054	Belt Feeder 10E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 10W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-10	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-10	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 10	TBD	TBD	TBD	TBD	TBD	No
055	Belt Feeder 11E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 11W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-11	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-11	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 11	TBD	TBD	TBD	TBD	TBD	No
056	Belt Feeder 12E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 12W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-12	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No

TABLE C-3 OPERATION 002 MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
056	Conveyor 7-12	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 12	TBD	TBD	TBD	TBD	TBD	No
057	Belt Feeder 13E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 13W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-13	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-13	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 13	TBD	TBD	TBD	TBD	TBD	No
058	Belt Feeder 14E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 14W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-14	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-14	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 14	TBD	TBD	TBD	TBD	TBD	No
059	Belt Feeder 15E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 15W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-15	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-15	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No

TABLE C-3 OPERATION 012 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
059	Ball Mill 15	TBD	TBD	TBD	TBD	TBD	No
060	Belt Feeder 16E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 16W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-16	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-16	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 16	TBD	TBD	TBD	TBD	TBD	No
061	Belt Feeder 17E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 17W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-17	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-17	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 17	TBD	TBD	TBD	TBD	TBD	No
062	Belt Feeder 18E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 18W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-18	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-18	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 18	TBD	TBD	TBD	TBD	TBD	No

TABLE C-3 OPERATION-002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
063	Belt Feeder 19E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 19W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-19	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-19	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 19	TBD	TBD	TBD	TBD	TBD	No
064	Belt Feeder 20E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 20W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-20	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-20	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 20	TBD	TBD	TBD	TBD	TBD	No
065	Belt Feeder 21E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 21W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-21	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-21	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 21	TBD	TBD	TBD	TBD	TBD	No
066	Belt Feeder 22E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No

TABLE C-3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
066	Belt Feeder 22W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-22	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-22	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 22	TBD	TBD	TBD	TBD	TBD	No
067	Belt Feeder 23E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 23W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-23	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-23	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 23	TBD	TBD	TBD	TBD	TBD	No
068	Belt Feeder 24E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 24W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-24	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-24	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 24	TBD	TBD	TBD	TBD	TBD	No
069	Belt Feeder 25E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 25W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No

TABLE C.3 OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
069	Conveyor 6-25	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-25	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 25	TBD	TBD	TBD	TBD	TBD	No
070	Belt Feeder 26E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 26W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-26	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-26	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 26	TBD	TBD	TBD	TBD	TBD	No
071	Belt Feeder 27E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 27W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-27	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-27	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 27	TBD	TBD	TBD	TBD	TBD	No
072	Belt Feeder 28E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 28W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-28	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No

TABLE C-5. OPERATION 002 - MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
072	Conveyor 7-28	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 28	TBD	TBD	TBD	TBD	TBD	No
073	Belt Feeder 29E	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Belt Feeder 29W	FMMI	25'L x 60"W	Custom Fabricated	1941	60 tph	No
	Conveyor 6-29	FMMI	55.5'L x 24"W	Custom Fabricated	1941	120 tph	No
	Conveyor 7-29	FMMI	92'L x 20"W	Custom Fabricated	1941	120 tph	No
	Ball Mill 29	TBD	TBD	TBD	TBD	TBD	No
074	Belt Feeder 30	FMMI	25'L x 60"W	Custom Fabricated	1988	120 tph	Yes
	Conveyor 6-30	FMMI	55.5'L x 24"W	Custom Fabricated	1988	120 tph	Yes
	Conveyor 7-30	FMMI	92'L x 20"W	Custom Fabricated	1988	120 tph	Yes
	Ball Mill 30	TBD	TBD	TBD	TBD	TBD	Yes
075	Belt Feeder 31	FMMI	25'L x 60"W	Custom Fabricated	1990	120 tph	Yes
	Conveyor 6-31	FMMI	55.5'L x 24"W	Custom Fabricated	1990	120 tph	Yes
	Conveyor 7-31	FMMI	92'L x 20"W	Custom Fabricated	1990	120 tph	Yes
	Ball Mill 31	TBD	TBD	TBD	TBD	TBD	Yes
076	Belt Feeder 32	FMMI	25'L x 60"W	Custom Fabricated	1995	120 tph	Yes

TABLE C.3 OPERATION 002 – MORENCI CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
076	Conveyor 6-32	FMMI	55.5'L x 24"W	Custom Fabricated	1995	120 tph	Yes
	Conveyor 7-32	FMMI	92'L x 20"W	Custom Fabricated	1995	120 tph	Yes
	Ball Mill 32	TBD	TBD	TBD	TBD	TBD	Yes
321	Regrind Mill 1	Metso	VTM-1000WB	TBD	TBD	178 tph	Yes
	Regrind Mill 2	Metso	VTM-1000WB	TBD	TBD	178 tph	Yes

TABLE 10-4: OPERATION 003 - METCALF MILL PLANT RECLAIM CONVEYORS (Material Transfer Operations)							
Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
273	R9/R10 FFDC	Farr	GS-16	213055	2006	3,000 dscfm	No
	Conveyor Belt R9	FMMI	1,300'L x 54" W	839020	2006	7,500 tph	No
	Conveyor Belt R10	TBD	TBD	TBD	TBD	7,500 tph	No
330	R10/R3 FFDC	Farr	TBD	TBD	TBD	3,000 dscfm	No
	Conveyor Belt R10	TBD	TBD	TBD	TBD	7,500 tph	No
	Conveyor Belt R3	FMMI	1,817'L x 60" W	Custom Fabricated	1988/2000	5,600 tph	No
079	R3/R4 Bag Collector 3	MikroPul	49S-8-20-TR-B	200077H3GA	2000	3,200 dscfm	No
	Conveyor Belt R3	FMMI	1,817'L x 60" W	Custom Fabricated	1988/2000	5,600 tph	No
	Conveyor Belt R4	FMMI	6,200'L x 60" W	Custom Fabricated	1988/2000	5,600 tph	No
080	R4/R5/R6 Bag Collector 4	MikroPul	121S-8-20-TR-C	200077H9GA	2000	8,300 dscfm	No
	Conveyor Belt R4	FMMI	6,200'L x 60" W	Custom Fabricated	1988/2000	5,600 tph	No
	Conveyor Belt R5	FMMI	403'L x 60" W	Custom Fabricated	1988/2000	5,600 tph	No
	Conveyor Belt R6	FMMI	351'L x 60" W	Custom Fabricated	1988/2000	5,600 tph	No

TABLE C-5. OPERATIONS - METCALF MFL PLANT CRUSHING OPERATIONS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
082	Conveyor R6/ MTHSB Scrubber 3C	NA	850	13D25003C	1974	35,400 DSCFM	No
	Conveyor Belt R6	FMMI	351' L x 60" W	Custom Fabricated	1988/2000	5,600 tph	No
	Metcalf Track Hopper Storage Bin	TBD	TBD	TBD	TBD	TBD	No
317	FFDC 3A	Farr	TBD	TBD	TBD	38,000 dscfm	Yes
	Apron Feeders 2A1 and 2A2	Link-Belt	67' L x 48" W each	NA	1974	467 tph each	No
	Apron Feeders 2A3 through 2A6	Link-Belt	67' L x 48" W each	NA	1974	750 tph each	No
	Apron Feeders 2B1 and 2B2	Link-Belt	67' L x 48" W each	NA	1974	467 tph each	No
	Apron Feeders 2B3 through 2B6	Link-Belt	67' L x 48" W each	NA	1974	750 tph each	No
	Conveyor Belt 3A2	FMMI	102' L x 54" W	Custom Fabricated	1974	1500 tph	No
	Conveyor Belt 3A3	FMMI	102' L x 54" W	Custom Fabricated	1974	1500 tph	No
	Conveyor Belt 3B2	FMMI	102' L x 54" W	Custom Fabricated	1974	1500 tph	No
	Conveyor Belt 3B3	FMMI	102' L x 54" W	Custom Fabricated	1974	1500 tph	No
	Conveyor Belt 3C	FMMI	210' L x 54" W	Custom Fabricated	1995	1,867 tph	Yes
	Conveyor Belt 4A	FMMI	645' L x 54" W	Custom Fabricated	1974	1,867 tph	No
	Conveyor Belt 4B	FMMI	645' L x 54" W	Custom Fabricated	1974	1,867 tph	No
	Conveyor Belt 4C	FMMI	645' L x 54" W	Custom Fabricated	1995	1,867 tph	Yes

TABLE C-5 OPERATION 003 - MITICALI MFL PLANT CRUSHING OPERATIONS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
301	FFDC 6A (Crushing Line A)	Farr	GS 60/50	TBD	TBD	21,700 dscfm	Yes
	Conveyor Belt 4A	FMMI	645'L x 54" W	Custom Fabricated	1974	1,867 tph	No
	Scalping Screen A	W.S. Tyler	F1608S-0	NA	1995	1,867 tph	Yes
	Secondary Crusher A	Nordberg	7' Extra Heavy Duty	35245962	1974	1,867 tph	No
	Secondary Screen A1	C.E. Tyler	F-900	NA	1974	934 tph	No
	Secondary Screen A2	C.E. Tyler	F-1406-X	20350	1974	934 tph	No
	Conveyor Belt 7	FMMI	602'L x 60" W	Custom Fabricated	1974	1,867 tph	No
	Conveyor Belt 8	FMMI	606'L x 60" W	Custom Fabricated	1974	1,867 tph	No
302	FFDC 6B (Crushing Line B)	Farr	GS 60/50	TBD	TBD	21,700 dscfm	Yes
	Conveyor Belt 4B	FMMI	645'L x 54" W	Custom Fabricated	1974	1,867 tph	No
	Scalping Screen B	W.S. Tyler	F1608S-0	NA	1995	1,867 tph	Yes
	Secondary Crusher B	Nordberg	7' Extra Heavy Duty	35245961	1974	1,867 tph	No
	Secondary Screen B1	C.E. Tyler	F-900	20737	1974	934 tph	No
	Secondary Screen B2	C.E. Tyler	F-1406-X	20353	1974	934 tph	No
	Conveyor Belt 7	FMMI	602'L x 60" W	Custom Fabricated	1974	1,867 tph	No
	Conveyor Belt 8	FMMI	606'L x 60" W	Custom Fabricated	1974	1,867 tph	No

TABLE C.5 OPERATION 003 – METCALF MILL PLANT CRUSHING OPERATIONS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
303	FFDC 8	Farr	GS 48/40	TBD	TBD	16,700 dscfm	No
	Conveyor Belt 5	FMMI	660' L x 60" W	Custom Fabricated	1974	5,600 tph	No
	Conveyor Belt 6	FMMI	1,292' L x 60" W	Custom Fabricated	1974	5,600 tph	No
304	FFDC 1 (Crushing Line C)	Farr	GS 60/50	TBD	TBD	21,700 dscfm	Yes
	Conveyor Belt 4C	FMMI	645' L x 54" W	Custom Fabricated	1995	1,867 tph	Yes
	Scalping Screen C	W.S. Tyler	F-1600	NA	1995	1,867 tph	Yes
	Secondary Crusher C	Nordberg	7' Extra Heavy Duty	7632	1995	1,867 tph	Yes
	Secondary Screen C1	W.S. Tyler	F-900	NA	1995	934 tph	Yes
	Secondary Screen C2	W.S. Tyler	F-900	NA	1995	934 tph	Yes
	Conveyor Belt 7	FMMI	602' L x 60" W	Custom Fabricated	1974	1,867 tph	No
	Conveyor Belt 8	FMMI	606' L x 60" W	Custom Fabricated	1974	1,867 tph	No
307	Conveyor Belt 9 Dust Collector	Filter Technology LTD	NA	071-DCD-03433	NA	62,500cfm	No
	Conveyor Belt 9	FMMI	485' L x 60" W	Custom Fabricated	1974	5,600 tph	No
	Conveyor Belt 14	FMMI	TBD x 60" W	Custom Fabricated	1974	4,500 tph	No

TABLE C-5 OPERATION OF METALLURGICAL PLANT CRUSHING OPERATIONS							
Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NPS Applicable
089	Scrubber 5	Ducon	A-33C, No. 102	C-89-0948-4	1989	41,400 dscfm	No
	Conveyor Belt 7	FMMI	602'L x 60" W	Custom Fabricated	1974	1,867 tph	No
	Conveyor Belt 5	FMMI	660'L x 60" W	Custom Fabricated	1974	5,600 tph	No
	Conveyor Belt 8	FMMI	606'L x 60" W	Custom Fabricated	1974	1,867 tph	No
	Conveyor Belt 11	FMMI	89'L x 54" W	Custom Fabricated	1974	1,867 tph	No
088	Scrubber 4	Ducon	A-33C, No. 114	C-89-0948-3	1989	45,900 dscfm	Yes
	Conveyor Belt 6	FMMI	1,292'L x 60" W	Custom Fabricated	1974	5,600 tph	No
	Tertiary Crushing Surge Bin (TCSB)	TBD	TBD	TBD	1995	TBD	Yes
	Belt Feeders 12-1 through 12-4	TBD	TBD	TBD	TBD	TBD	No
	Belt Feeders 12-5 and 12-6	TBD	TBD	TBD	1995	TBD	Yes
306	Tertiary Crushing Dust Collector	Filter Technology LTD	NA	071-DCD-03432	NA	62,500cfm	Yes
	Belt Feeders 12-1 through 12-4	TBD	TBD	TBD	TBD	TBD	No
	Belt Feeders 12-5 and 12-6	TBD	TBD	TBD	1995	TBD	Yes
	Tertiary Crusher C1	Nordberg	7' Heavy Duty	NA	1974	750 tph	No
	Tertiary Crusher C2	Nordberg	7' Heavy Duty	7731	1974	750 tph	No
	Tertiary Crusher C3	Nordberg	7' Heavy Duty	35246337	1974	750 tph	No

TABLE C-5 OPERATION 003 - METCALF MFL PLANT CRUSHING OPERATIONS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
306	Tertiary Crusher C4	Nordberg	7' Heavy Duty	35249618	1974	750 tph	No
	Tertiary Crusher C5	Nordberg	7' Heavy Duty	7629	1995	750 tph	Yes
	Tertiary Crusher C6	Nordberg	7' Heavy Duty	7551	1995	750 tph	Yes

TABLE C-6 OPERATIONS UNIT - MURICAULT MINE PLANT CONVEYOR STACKING SYSTEM (Material Transfer Operations)							
Process Number	Equipment	MFR	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
320	14/ 15 FFDC	Farr	TBD	TBD	TBD	3,000 dscfm	No
	Conveyor Belt 14	FMMI	TBD x 60" W	Custom Fabricated	1974	4,500 tph	No
	Conveyor Belt 15	TBD	TBD	TBD	TBD	4,500 tph	No
331	15/ 16 FFDC	Farr	TBD	TBD	TBD	3,000 dscfm	No
	Conveyor Belt 15	TBD	TBD	TBD	TBD	4,500 tph	No
	Conveyor Belt 16	TBD	TBD	TBD	TBD	4,500 tph	No
309	16/S11 FFDC	Farr	TBD	TBD	TBD	3,000 dscfm	No
	Conveyor Belt 16	TBD	TBD	TBD	TBD	4,500 tph	No
	Conveyor Belt S11	FMMI	TBD	Custom Fabricated	2000	5,600 tph	No
199	Conveyor Belt S11 (transfer to Fine Ore Intermediate Stockpile)	FMMI	N/A	Custom Fabricated	2000	5,600 tph	No
201	Fine Ore Intermediate Stockpile/A1A Bag Collector 7	MikroPul	49S-8-20-TR-C	200077H10GA	2000	11,200 dscfm	No
	Belt Feeders SF1 and SF2	TBD	TBD	TBD	TBD	TBD	No
	Conveyor Belt A1A	FMMI	NA	Custom Fabricated	2000	5,600 tph	No
202	A1A / A2A Bag Collector 8	MikroPul	49S-8-20-TR-B	200077H5GA	2000	3,200 dscfm	No
	Conveyor Belt A1A	FMMI	TBD	Custom Fabricated	2000	5,600 tph	No

TABLE C-6 OPERATION 003 - METCALF MILL PLANT CONVEYOR STACKING SYSTEM (Material Transfer Operations)

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
202	Agglomeration Splitter	TBD	TBD	TBD	TBD	TBD	No
	Conveyor Belt A2A	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
203	A1A / A2C Bag Collector 9	MikroPul	49S-8-20-TR-B	200077H17GA	2000	3,200 dscfm	No
	Conveyor Belt A1A	FMMI	NA	Custom Fabricated	2000	5,600 tph	No
	Agglomeration Splitter	TBD	TBD	TBD	TBD	TBD	No
	Conveyor Belt A2C	FMMI	TBD	Custom Fabricated	2000	2,800 tph	No
204	Agglomerating Unit 1	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
205	Agglomerating Unit 2	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
206	Conveyor Belt S12	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
207	Conveyor Stacking Splitter	TBD	TBD	TBD	TBD	TBD	No
208	Conveyor Belt 13A	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
209	Ramp Conveyor 14A	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
210	Luffing Boom Conveyor 15A	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
322	Conveyor Belt 16A	FMMI	NA	Custom Fabricated	2009	2,800 tph	No
324	Conveyor Belt 17A	FMMI	NA	Custom Fabricated	2011	2,800 tph	No
363	Mobile Stacking Conveyor 18A	TNT	Ramp Super Portable	100000989093	2013	2,800 tph	No
211	Mobile Stacking Conveyor A	FMMI	NA	Custom Fabricated	2000	2,800 tph	No

TABLE C-6 OPERATIONS 003 - MELT CALF MEL PLANT CONVEYOR STACKING SYSTEM (Material Transfer Operations)							
Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
212	Radial Stacker A	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
259	Super Portable Conveyor	FMMI	NA	NA	NA	2,800 tph	No
214	Belt Feeder SF3	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
215	Conveyor Belt 13B	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
216	Ramp Conveyor 14B	FMMI	NA	Custom Fabricated	2007	2,800 tph	No
252	Conveyor Belt 16B	FMMI	NA	Custom Fabricated	2007	2,800 tph	No
217	Luffing Boom Conveyor 15B	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
329	Conveyor Belt 17B	FMMI	NA	Custom Fabricated	2012	2,800 tph	No
364	Mobile Stacking Conveyor 18B	TNT	Ramp Super Portable	100000989095	2013	2,800 tph	No
218	Mobile Stacking Conveyor B	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
219	Radial Stacker B	FMMI	NA	Custom Fabricated	2000	2,800 tph	No
390	Grasshopper Conveyor	TBD	TBD	TBD	TBD	2,800 tph	No
382	Ramp Super Portable Conveyor 19A	TBD	TBD	TBD	TBD	2,800 tph	No
383	Ramp Super Portable Conveyor 19B	TBD	TBD	TBD	TBD	2,800 tph	No
384	Ramp Super Portable Conveyor 20B	TBD	TBD	TBD	TBD	2,800 tph	No
385	Overland Conveyor S26	TBD	TBD	TBD	TBD	5,647 tph	No
386	Overland Conveyor S27	TBD	TBD	TBD	TBD	5,647 tph	No

TABLE C-6 OPERATIONS: METCALFE MEL PLANT CONVEYOR STACKING SYSTEM (Material Transfer Operations)

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
387	Overland Conveyor S28	TBD	TBD	TBD	TBD	5,647 tph	No
388	Overland Conveyor S29 with Mobile Tripper	TBD	TBD	TBD	TBD	5,647 tph	No
389	Standard Super Portable Conveyor SP1	TBD	TBD	TBD	TBD	5,647 tph	No
394	Portable Transfer Conveyor PT1	TBD	TBD	TBD	TBD	5,647 tph	No
395	Radial Stacker RS1	TBD	TBD	TBD	TBD	5,647 tph	No
396	Radial Stacker RS2	TBD	TBD	TBD	TBD	5,647 tph	No
397	Mobile Stacker Conveyor MBC	TBD	TBD	TBD	TBD	5,647 tph	No
398	Ramp Super Portable Conveyor RP1	TBD	TBD	TBD	TBD	5,647 tph	No
399	Ramp Super Portable Conveyor RP2	TBD	TBD	TBD	TBD	5,647 tph	No
400	Ramp Super Portable Conveyor RP3	TBD	TBD	TBD	TBD	5,647 tph	No
401	Ramp Super Portable Conveyor RP4	TBD	TBD	TBD	TBD	5,647 tph	No
402	Ramp Super Portable Conveyor RP5	TBD	TBD	TBD	TBD	5,647 tph	No
403	Ramp Super Portable Conveyor RP6	TBD	TBD	TBD	TBD	5,647 tph	No
404	Ramp Super Portable Conveyor RP7	TBD	TBD	TBD	TBD	5,647 tph	No
405	Ramp Super Portable Conveyor RP8	TBD	TBD	TBD	TBD	5,647 tph	No
406	Ramp Super Portable Conveyor RP9	TBD	TBD	TBD	TBD	5,647 tph	No
407	Ramp Super Portable Conveyor RP10	TBD	TBD	TBD	TBD	5,647 tph	No

TABLE C-6: OPERATION 003 - MILL FEED MILL PLANT CONVEYOR/STACKING SYSTEM (Material Transfer Operations)							
Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
408	Ramp Super Portable Conveyor RP11	TBD	TBD	TBD	TBD	5,647 tph	No
409	Ramp Super Portable Conveyor RP12	TBD	TBD	TBD	TBD	5,647 tph	No
410	Ramp Super Portable Conveyor RP13	TBD	TBD	TBD	TBD	5,647 tph	No
411	Horizontal Feed Conveyor HFC1	TBD	TBD	TBD	TBD	5,647 tph	No
412	Horizontal Conveyor HC1	TBD	TBD	TBD	TBD	5,647 tph	No
413	Radial Stacker RS3	TBD	TBD	TBD	TBD	5,647 tph	No

TABLE C-7 OPERATION 017 - METCALF CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
318	Secondary Screen Feed Bin FFDC	Farr	TBD	TBD	TBD	5,000 dscfm	Yes
	Conveyor Belt R11	TBD	TBD	TBD	TBD	7,200 tph	No
	Secondary Crusher Discharge Conveyor	TBD	TBD	TBD	TBD	3,658 tons	Yes
	Secondary Screen Feed Bin	TBD	TBD	TBD	TBD	1,000 tons	Yes
280	Secondary Screening Plant FFDC 1	Farr	TBD	TBD	TBD	25,900 dscfm	Yes
	Secondary Screen Belt Feeder 1	TBD	TBD	TBD	TBD	4,160 tph	Yes
	Secondary Screen 1	Metso	Ellipti-Flow 4285	TBD	TBD	4,160 tph	Yes
	Secondary Crusher Feed Conveyor	TBD	TBD	TBD	TBD	3,658 tph	Yes
	Crushed Ore A Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes
281	Secondary Screening Plant FFDC 2	Farr	TBD	TBD	TBD	25,900 dscfm	Yes
	Secondary Screen Belt Feeder 2	TBD	TBD	TBD	TBD	4,160 tph	Yes
	Secondary Screen 2	Metso	Ellipti-Flow 4285	TBD	TBD	4,160 tph	Yes
	Secondary Crusher Feed Conveyor	TBD	TBD	TBD	TBD	3,658 tph	Yes
	Crushed Ore A Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes
319	Secondary Crusher Feed Bin FFDC	Farr	TBD	TBD	TBD	2,500 dscfm	Yes
	Secondary Crusher Feed Conveyor	TBD	TBD	TBD	TBD	3,658 tph	Yes
	Secondary Crusher Feed Bin	TBD	TBD	TBD	TBD	1,000 tons	Yes

TABLE C-7 OPERATION 017-METCALFE CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No	Year of Manufacture	Design Capacity	NSPS Applicable
283	Secondary Crushing Plant FFDC 1	Farr	TBD	TBD	TBD	8,800 dscfm	Yes
	Secondary Crusher Belt Feeder 1	TBD	TBD	TBD	TBD	1,829 tph	Yes
	Secondary Crusher 1	Metso	MP-1250	TBD	TBD	1,829 tph	Yes
	Secondary Crusher Discharge Conveyor	TBD	TBD	TBD	TBD	3,658 tph	Yes
284	Secondary Crushing Plant FFDC 2	Farr	TBD	TBD	TBD	8,800 dscfm	Yes
	Secondary Crusher Belt Feeder 2	TBD	TBD	TBD	TBD	1,829 tph	Yes
	Secondary Crusher 2	Metso	MP-1250	TBD	TBD	1,829 tph	Yes
	Secondary Crusher Discharge Conveyor	TBD	TBD	TBD	TBD	3,658 tph	Yes
285	Crushed Ore A/B Conveyor Transfer Point FFDC	Farr	TBD	TBD	TBD	3,000 dscfm	Yes
	Crushed Ore A Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes
	Crushed Ore B Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes
286	Crushed Ore B/Tripper Conveyor Transfer Point FFDC	Farr	TBD	TBD	TBD	3,000 dscfm	Yes
	Crushed Ore B Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes
	Crushed Ore Bin Tripper Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes
287	Crushed Ore Bin FFDC 1	Farr	TBD	TBD	TBD	22,900 dscfm	Yes
	Crushed Ore Bin Tripper Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes

TABLE C-7 OPERATION OF METCALFE CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
287	Crushed Ore Bin A	TBD	TBD	TBD	TBD	TBD	Yes
	Crushed Ore Belt Feeders 1 through 6	TBD	TBD	TBD	TBD	3,646 tph each	Yes
	Crushed Ore Feed Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
	Crushed Ore Feed Transfer Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
288	Crushed Ore Bin FFDC 2	Farr	TBD	TBD	TBD	20,000 dscfm	Yes
	Crushed Ore Bin Tripper Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes
	Crushed Ore Bin B	TBD	TBD	TBD	TBD	TBD	Yes
	Crushed Ore Belt Feeders 7 through 12	TBD	TBD	TBD	TBD	3,646 tph each	Yes
	Crushed Ore Feed Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
289	Crushed Ore Bin FFDC 3	Farr	TBD	TBD	TBD	20,000 dscfm	Yes
	Crushed Ore Bin Tripper Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes
	Crushed Ore Bin B	TBD	TBD	TBD	TBD	TBD	Yes
	Crushed Ore Belt Feeders 13 to 18	TBD	TBD	TBD	TBD	3,646 tph each	Yes
	Crushed Ore Feed Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
290	Crushed Ore Bin FFDC 4	Farr	TBD	TBD	TBD	20,000 dscfm	Yes
	Crushed Ore Bin Tripper Conveyor	TBD	TBD	TBD	TBD	4,662 tph	Yes

TABLE C-7 OPERATION 017 - METCALFE CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
290	Crushed Ore Bin C	TBD	TBD	TBD	TBD	TBD	Yes
	Crushed Ore Belt Feeders 19 to 24	TBD	TBD	TBD	TBD	3,646 tph each	Yes
	Crushed Ore Feed Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
291 (Baseline operating scenario)	Crushed Ore Transfers FFDC	Farr	TBD	TBD	TBD	10,000 dscfm	Yes
	Crushed Ore Feed Transfer Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
	Roll Crusher Surge Bin	TBD	TBD	TBD	TBD	TBD	Yes
	Roll Crusher Belt Feeder 1	TBD	TBD	TBD	TBD	3,395 tph	Yes
	Roll Crusher Belt Feeder 2	TBD	TBD	TBD	TBD	3,395 tph	Yes
	Crusher Feed Conveyor 1	TBD	TBD	TBD	TBD	6,790 tph	Yes
	Crusher Feed Hopper 1	TBD	TBD	TBD	TBD	TBD	Yes
291 (Alternate operating scenario)	Crushed Ore Transfers FFDC	Farr	TBD	TBD	TBD	10,000 dscfm	Yes
	Crushed Ore Feed Transfer Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
	Roll Crusher Surge Bin	TBD	TBD	TBD	TBD	TBD	Yes
	Roll Crusher Belt Feeder 1	TBD	TBD	TBD	TBD	3,395 tph	Yes
	Roll Crusher Belt Feeder 2	TBD	TBD	TBD	TBD	3,395 tph	Yes
	Crusher Feed Conveyor 1	TBD	TBD	TBD	TBD	6,790 tph	Yes

TABLE C-7 OPERATION 017 - METCALF CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
291 (Alternate operating scenario)	Crusher Feed Conveyor 2	TBD	TBD	TBD	TBD	3,395 tph	Yes
	Crusher Feed Hopper 1	TBD	TBD	TBD	TBD	TBD	Yes
	Crusher Feed Hopper 2	TBD	TBD	TBD	TBD	TBD	Yes
292 (Baseline operating scenario)	Roll Crusher FFDC	Farr	TBD	TBD	TBD	10,000 dscfm	Yes
	Roll Crusher	TBD	TBD	TBD	TBD	6,790 tph	Yes
	Roll Crusher Discharge Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
292 (Alternate operating scenario)	Roll Crusher FFDC	Farr	TBD	TBD	TBD	10,000 dscfm	Yes
	HPGR Crusher 1	TBD	TBD	TBD	TBD	3,395 tph	Yes
	HPGR Crusher 2	TBD	TBD	TBD	TBD	3,395 tph	Yes
	HPGR Crusher Discharge Conveyor	TBD	TBD	TBD	TBD	3,395 tph	Yes
	Roll Crusher Discharge Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
294	Wet Screen Feed FFDC	Farr	TBD	TBD	TBD	2,500 dscfm	Yes
	Roll Crusher Discharge Conveyor	TBD	TBD	TBD	TBD	6,790 tph	Yes
	Wet Screen Feed Bin	TBD	TBD	TBD	TBD	1,000 tons	Yes
327	Wet Screen Belt Feeder 1	TBD	TBD	TBD	TBD	3,395 tph	Yes
	Wet Screen Belt Feeder 2	TBD	TBD	TBD	TBD	3,395 tph	Yes
	Wet Screen 1	Metso	4285	TBD	TBD	3,395 tph	Yes

TABLE C-7 OPERATION OF MILL CONCENTRATOR

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
327	Wet Screen 2	Metso	4285	TBD	TBD	3,395 tph	Yes
	Wet Screen Oversize Conveyor	TBD	TBD	TBD	TBD	2,819 tph	Yes
	Wet Screen Oversize Transfer Conveyor	TBD	TBD	TBD	TBD	2,819 tph	Yes
	Wet Screen Oversize Shuttle Conveyor	TBD	TBD	TBD	TBD	2,819 tph	Yes
	Wet Screen Oversize Bin	TBD	TBD	TBD	TBD	TBD	Yes
	Wet Screen Oversize Belt Feeders 1 through 5	TBD	TBD	TBD	TBD	2,205 tph each	Yes
	Ball Mill 1	Metso	TBD	TBD	TBD	3,420 tph	Yes
	Ball Mill 2	Metso	TBD	TBD	TBD	3,420 tph	Yes
	Regrind Mill 1	Metso	VT-1000	TBD	TBD	191 tph	Yes
	Regrind Mill 2	Metso	VT-1000	TBD	TBD	191 tph	Yes

TABLE 6.8 OPERATIONS USE - COMBINED MOLYBDENUM FLOTATION PLANT/ CONCENTRATE PROCESSING OPERATIONS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
333	Trash Screen	TBD	TBD	TBD	TBD	375 tph	Yes
334	Molybdenum Filter Discharge Hopper	TBD	TBD	TBD	TBD	6.93 tph	Yes
	Molybdenum Filter Screw Conveyor	TBD	TBD	TBD	TBD	6.93 tph	Yes
336	Venturi Scrubber (H <sub>2</sub> S Scrubber System Part 1)	TBD	TBD	TBD	TBD	18,000 acfm	No
	1 <sup>st</sup> Stage Packed Bed Scrubber (H <sub>2</sub> S Scrubber System Part 2)	TBD	TBD	TBD	TBD	18,000 acfm	No
	2 <sup>nd</sup> Stage Packed Bed Scrubber (H <sub>2</sub> S Scrubber System Part 3)	TBD	TBD	TBD	TBD	18,000 acfm	No

TABLE C-9 OPERATION OFS - MICHIGAN COMBINED CYCLE POWERPLANT

Process Number	Equipment	Manufacturer	Model	Serial No	Year of Manufacture	Design Capacity	NSPS Applicable
108	Gas Turbine 1	General Electric	Frame 5 Model M	214249	1970	240 MMBtu/hr	No
109	Gas Boiler 1	Foster Wheeler	NA	19401	1970	250 MMBtu/hr	No
110	Gas Turbine 2	General Electric	Frame 5 Model M	214250	1970	240 MMBtu/hr	No
111	Gas Boiler 2	Foster Wheeler	NA	19402	1970	250 MMBtu/hr	No
260	Cooling Tower 1	TBD	TBD	TBD	TBD	17,100 gpm	No
261	Cooling Tower 2	TBD	TBD	TBD	TBD	17,100 gpm	No

TABLE C-10 OPERATION 004 - LIME SLAKING PLANTS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
231	Lime Silo 1	ZMI/Portec	850 QL	TBD	TBD	7,400 ft <sup>3</sup>	No
	Lime Silo 1 Dust Filter	Mac	DF-48	TBD	TBD	1,175 cfm	No
	Lime Transfer Conveyor	TBD	TBD	TBD	TBD	TBD	No
	Lime Feeder 1	TBD	TBD	TBD	TBD	TBD	No
232	Lime Silo 2	ZMI/Portec	850 QL	TBD	TBD	7,400 ft <sup>3</sup>	No
	Lime Silo 2 Dust Filter	Mac	DF-48	TBD	TBD	1,175 cfm	No
	Lime Transfer Conveyor	TBD	TBD	TBD	TBD	TBD	No
	Lime Feeder 2	TBD	TBD	TBD	TBD	TBD	No
233	Lime Slaker 1	ZMI/Portec	M-55	TBD	TBD	6.25 tph	No
234	Lime Slaker 2	ZMI/Portec	M-55	TBD	TBD	6.25 tph	No
275	Metcalf Lime Silo	TBD	TBD	TBD	TBD	3.125 tph	No
	Metcalf Lime Silo Bin Vent	TBD	TBD	TBD	TBD	TBD	No
	Metcalf Lime Screw Feeder	TBD	TBD	TBD	TBD	3.125 tph	No
276	Metcalf Detention Slaker	TBD	TBD	TBD	TBD	3.125 tph	No

TABLE C-11: OPERATION 006 - COPPER CONCENTRATE PROCESSING OPERATIONS

Process Number	Description	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
044	Conveyor Belt 10A South	FMMI	TBD x 24"W	Custom Fabricated	1941	500 tph	No
	Conveyor Belt 11	FMMI	660'L x 24"W	Custom Fabricated	1941	500 tph	No
	Conveyor Belt 11A	FMMI	660'L x 24"W	Custom Fabricated	1941	500 tph	No
	Conveyor Belt 11B	FMMI	660'L x 24"W	Custom Fabricated	1941	500 tph	No
	Conveyor Belt 12	FMMI	62'L x 24"W	Custom Fabricated	1941	500 tph	No
	Conveyor Belt 13	FMMI	134'L x 24"W	Custom Fabricated	1941	500 tph	No
	Conveyor Belt BA	FMMI	660' L x 24"W	Custom Fabricated	1941	500 tph	No
	Conveyor Belt BB	FMMI	660'L x 24"W	Custom Fabricated	1941	500 tph	No
	Conveyor Belt BC	FMMI	660'L x 24"W	Custom Fabricated	1941	500 tph	No
235	CLP Feed Hopper	TBD	TBD	TBD	TBD	29.1 tph	No
335	Copper Concentrate Storage Building	NA	NA	NA	1941	NA	No
391	Filter Feed Trash Screen	TBD	TBD	TBD	TBD	500 tph	Yes
392	Copper Filter Discharge Hopper 1	TBD	TBD	TBD	TBD	500 tph	Yes
	Copper Filter Discharge Hopper 2	TBD	TBD	TBD	TBD	500 tph	Yes
	Copper Cake Discharge Feeder 1	TBD	TBD	TBD	TBD	500 tph	Yes
	Copper Cake Discharge Feeder 2	TBD	TBD	TBD	TBD	500 tph	Yes
	Final Concentrate Conveyor	TBD	TBD	TBD	TBD	500 tph	Yes

TABLE C-12 OPERATION 009 – SOLUTION EXTRACTION/ELECTROWINNING

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
117	Central SX	FMMI	Custom Fabricated	Custom Fabricated	1987	38,291 ft <sup>2</sup>	No
118	Metcalf SX	FMMI	Custom Fabricated	Custom Fabricated	1987	61,510 ft <sup>2</sup>	No
119	Modoc SX	FMMI	Custom Fabricated	Custom Fabricated	1992	97,604 ft <sup>2</sup>	No
349	Stargo SX	FMMI	Custom Fabricated	Custom Fabricated	TBD	51,345 ft <sup>2</sup>	No
121	Central EW	FMMI	Custom Fabricated	Custom Fabricated	1987	548 cells	No
122	Southside EW	FMMI	Custom Fabricated	Custom Fabricated	1995	220 cells	No
221	Stargo EW	FMMI	Custom Fabricated	Custom Fabricated	2000	324 cells	No
129	Diluent Tank 1	FMMI	22' D x 18'H	233-D-002	NA	51,188 gallons	No
130	Diluent Tank 2	FMMI	25' D x 13.7'H	Custom Fabricated	NA	49,766 gallons	No
131	Diluent Tank 3	FMMI	18' D x 13.5'H	237-D-002	NA	25,700 gallons	No
350	Diluent Tank 4	FMMI	16' D x 18'H	Custom Fabricated	NA	27,071 gallons	No
132	Barren Organic Tank BO-1	FMMI	24' D x 18'H	233-D-003	NA	60,910 gallons	No
133	Barren Organic Tank BO-2A	FMMI	28' D x 18'H	233-D-001	NA	82,916 gallons	No
134	Barren Organic Tank BO-2B	FMMI	30' D x 16'H	Barren Organic Tank F	NA	84,957 gallons	No
135	Barren Organic Tank BO-3A	FMMI	30' D x 16'H	2283-TNK-00	NA	84,957 gallons	No
351	Partially Loaded Organic Tank	FMMI	34' D x 18'H	233-TNK-008	NA	122,259 gallons	No

TABLE C-12 OPERATION 009 - SOLUTION EXTRACTION/ELC TROWINING

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
138	Loaded Organic Tank LO-4A	FMMI	27' D x 23'H	Custom Fabricated	NA	98,500 gallons	No
140	Organic Recovery Tank OR-2A	FMMI	60' D x 14.5'H	A Organic Recovery Tank	NA	302,474 gallons	No
141	Organic Recovery Tank OR-2B	FMMI	60' D x 14.5'H	B Organic Recovery Tank	NA	302,474 gallons	No
142	Organic Recovery Tank OR-3A	FMMI	60' D x 15'H	Organic Recovery Tank A	NA	317,238 gallons	No
143	Organic Recovery Tank OR-3B	FMMI	60' D x 15'H	Organic Recovery Tank B	NA	317,238 gallons	No
123	Small Industrial Boiler 1	Cleaver Brooks	CB-700-500-125	94148	1995	20.9 MMBtu/hr	Yes
184	Small Industrial Boiler 2	Cleaver Brooks	CB-700-500-125	OLO97318	1998	20.9 MMBtu/hr	Yes
185	Small Industrial Boiler 3	Cleaver Brooks	CB-700-500-125	OLO97317	1998	20.9 MMBtu/hr	Yes
222	Small Industrial Boiler 4	NA	NA	NA	2000	20.9 MMBtu/hr	Yes
223	Small Industrial Boiler 5	NA	NA	NA	2000	20.9 MMBtu/hr	Yes
274	Diesel Hot Water Pressure Cleaner 1	North Star	157598	4K1BP1626BF0005 01	2011	0.55 MMBtu/hr	No
347	Diesel Hot Water Pressure Cleaner 2	North Star	157598	4K1BP1626BF0005 02	2011	0.55 MMBtu/hr	No

TABLE C-13: OPERATION 014 - CONCENTRATE LEACH PLANT

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
341	CLP Feed Conveyor	TBD	TBD	TBD	TBD	29.1 tph	No
239	Pressure Leach Vessel	TBD	TBD	TBD	TBD	29.1 tph	No
	PLV 2-Stage Scrubber	MikroPul	Multi-Venturi	TBD	2005	8,760 hours/year	No
240	PLV Cooling Tower	TBD	TBD	TBD	TBD	600,000 gph	No
241	Oxygen Plant Cooling Tower	TBD	TBD	TBD	TBD	309,000 gph	No
242	Natural Gas Start up Boiler	TBD	TBD	TBD	TBD	21 MMBtu/hr	Yes
348	Flocculant Bin	TBD	TBD	TBD	TBD	0.5 tph	No
	Flocculant Bin Vent	TBD	TBD	TBD	TBD	500 acfm	No
	Flocculant Feeder	TBD	TBD	TBD	TBD	0.5 tph	No
254	Lime Silo	Steel Structure, Inc.	TBD	72493	2007	75 tons	No
	Lime Silo Bin Vent	Modu-Kleen	Series 343-A	8000107	TBD	TBD	No
253	Super Sack Unloader	TBD	TBD	TBD	TBD	TBD	No
	Super Sack Unloader Bin Vent	Modu-Kleen	Series 250	1098219	TBD	TBD	No

TABLE C-11 OPERATION 019 - LABORATORY ACTIVITIES

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
332	Laboratory Hood 1	TBD	TBD	TBD	TBD	TBD	No
	Laboratory Hood 2	TBD	TBD	TBD	TBD	TBD	No
	Laboratory Hood 3	TBD	TBD	TBD	TBD	TBD	No
	Gilson Screening Unit 1	Gilson	TBD	TBD	TBD	TBD	No
	Gilson Screening Unit 2	Gilson	TBD	TBD	TBD	TBD	No
	Bico Pulverizers 1 through 5	Bico	Ring-and-Puck	TBD	TBD	TBD	No
	Lab Flotation Machines 1 and 2	Denver	D-12	TBD	TBD	TBD	No
	Mill Lab Dust Collector	Tri-Flow	TF 1212	TBD	TBD	10,000 cfm	No

TABLE C-15 OPERATION 015 - DIESEL GENERATORS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
262	Emergency Diesel Engine	AB Volvo Penta	TAD1641GE	NA	2008	565 kW	Yes
366	Security Main Gate Diesel Emergency Generator	TBD	TBD	TBD	TBD	60 kW	Yes
414	Metcalf Concentrator Emergency Generator	Kohler	TBD	TBD	TBD	504 kWe (757 hp engine)	Yes
415	ETPS Building Tailings Dam Emergency Generator	Cummins	TBD	TBD	TBD	175 kWe (324 hp engine)	Yes
416	Dewatering Pump Emergency Generator	Caterpillar	TBD	TBD	TBD	3,000 kWe (4,376 hp engine)	Yes

TABLE C-16 OPERATION UNIT - STORAGE TANKS

Process Number	Equipment	Material	Model	Serial No.	Year of Manufacture	Design Capacity	NRPS Applicable
150	Diesel Tank D1	FMMI	31.25'D x 31'H	Custom Fabricated	Prior to 1984	177,850 gallons	No
151	Diesel Tank D2	FMMI	42.4'D x 31'H	Custom Fabricated	Prior to 1984	200,434 gallons	No
154	Diesel Tank D5	FMMI	20'D x 32'H	Custom Fabricated	Prior to 1984	47,255 gallons	No
161	Diesel Tank Pit 95	FMMI	27'D x 30'H	Custom Fabricated	Prior to 1984	101,690 gallons	No
345	Sulfuric Acid Storage Tank	FMMI	20'D x 20'H	Custom Fabricated	2010	47,000 gal.	No
346	Sulfuric Acid Stand Pipe Tank	FMMI	Custom Fabricated	Custom Fabricated	2010	3' dia	No
GDF 1 (Mill)				10,000 to 100,000 Gallons per month			No
155	Gasoline Tank G1	FMMI	9.00'D x 25' L	Custom Fabricated	Prior to 1984	12,000 gal.	No
156	Gasoline Tank G2	FMMI	9.00'D x 25' L	Custom Fabricated	Prior to 1984	12,000 gal.	No
157	Gasoline Tank G3	FMMI	9.00'D x 25' L	Custom Fabricated	Prior to 1984	12,000 gal.	No
342	Gasoline Tank C1	Nogales Iron/Steel	WNR 8'D X 16' L	604623	1996	6,000 gal.	No
GDF 2 (Mine)				10,000 to 100,000 Gallons per month			No
263	Gasoline Tank Pit 72	FMMI	9'D x 21' L	Custom Fabricated	Prior to 1984	9,994 gallons	No
264	Gasoline Tank Pit 73	FMMI	9'D x 21' L	Custom Fabricated	Prior to 1984	9,994 gallons	No
266	Gasoline Tank Pit 77	FMMI	9'D x 21' L	Custom Fabricated	Prior to 1984	9,994 gallons	No

TABLE C-10 OPERATION OIL STORAGE TANKS							
Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
GDF 3 (Mine on Skids)				10,000 to 100,000 Gallons per month			No
267	Gasoline Tank Pit 76	FMMI	5.42' D x 15.08' L	Custom Fabricated	Prior to 1984	2,600 gallons	No
GDF 4 (Guard Gate on Skids)				Less than 10,000 gallons per month			No
268	Gasoline Tank Pit 78	FMMI	3.75' D x 12' L	Custom Fabricated	Prior to 1984	980 gallons	No
269	Gasoline Tank Pit 79	FMMI	3.75' D x 12' L	Custom Fabricated	Prior to 1984	980 gallons	No
GDF 5 (Copper Leaching Stockpiles)				Less than 10,000 gallons per month			No
365	Gasoline Tank 365	TBD	3.79'D X 6.17' L	TBD	2013	515 gallons	No

TABLE C-17: OPERATION (20) - CRUSHING AND SCREENING PLANT

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
019	Scalping Grizzly Screen	Ludowici	VGf	LI-4220-19495	2005	500 tph	Yes, except for truck dumping onto the screen
	Primary Jaw Crusher	Sandvik	JM 1208	770370	2007	500 tph	Yes
	Conveyor Belt 1	Dakota Fabricating	42"	1783	2005	600 tph	Yes
	Triple Deck Screen	Cedar Rapids	TSS6203-32	53277	2007	600 tph	Yes
	Conveyor Belt 2	Marco	575 H	86523-1	2007	500 tph	Yes, except when transferring to a stockpile
	Conveyor Belt 3	Marco	575 H	86523-1	2007	500 tph	Yes, except when transferring to a stockpile
	Conveyor Belt 4	Dakota Fabricating	40'L x 36"W	1794	2005	350 tph	Yes
	Conveyor Belt 5	Dakota Fabricating	60'L x 36"W	1784	2005	350 tph	Yes
	Secondary Cone Crusher	Sandvik	H4800	SW0770009	2007	350 tph	Yes
	Conveyor Belt 6	Dakota Fabricating	15'L x 36"W	1785	2005	350 tph	Yes

TABLE C-13 OPERATION 013 - GRIZZLY OPERATIONS

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
195	Concentrate Grizzly	FMMI	Custom Fabricated	Custom Fabricated	Prior to 1970	60 tph	No
337	Construction Grizzly 1	TBD	TBD	TBD	TBD	500 tph	No
338	Construction Grizzly 2	TBD	TBD	TBD	TBD	500 tph	No
339	Construction Grizzly 3	TBD	TBD	TBD	TBD	500 tph	No
380	Stockpile Grizzly 1	FMMI	Custom Fabricated	Custom Fabricated	2012	500 tph	No
381	Stockpile Grizzly 2	FMMI	Custom Fabricated	Custom Fabricated	2012	500 tph	No

TABLE C-19 OPERATION 000 - CONCRETE BATCH PLANT							
Equipment Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
144	Feed Hopper	Ross Company	12 Yard Boss VP-S/N	Boss-23	1994	TBD	No
145	Aggregate Conveyor Belt	Ross Company	37' L x 30" W	TBD	1994	TBD	No
146	Fly Ash Silo	Ross Company	TBD	TBD	1994	52 tons	No
	Fly Ash Silo Bin Vent	Ross Company	3 CP 250 Vent	TBD	1994	900 scfm	No
	Fly Ash Silo Screw Conveyor	Ross Company	9.83' L x 9" W	TBD	1994	TBD	No
147	Cement Silo	Ross Company	TBD	TBD	1994	52 tons	No
	Cement Silo Bin Vent	Ross Company	3 CP 250 Vent	TBD	1994	900 scfm	No
	Cement Silo Screw Conveyor	Ross Company	TBD	TBD	1994	TBD	No
148	Aggregate Conveyor Belt	Ross Company	37' L x 30" W	TBD	1994	TBD	No
	Fly Ash Silo Screw Conveyor	Ross Company	9.83' L x 9" W	TBD	1994	TBD	No
	Cement Silo Screw Conveyor	Ross Company	TBD	TBD	1994	TBD	No
	Weigh Hopper	Ross Company	TBD	TBD	1994	TBD	No
270	Propane Hot Water Heater 1	Sioux Corp.	M-1	08-3126, 0809036	2008	1.2 MMBtu/hr	No
271	Propane Hot Water Heater 2	Sioux Corp.	M-1	08-3136, 0802015	2008	1.2 MMBtu/hr	No
310	Propane Hot Water Heater 3	Sioux Corp.	M-1	13-3703	2013	1.2 MMBtu/hr	No

Table C-40. Operation 016 - VLE Pilot Plant and Laboratory (operates during AOS 1 only)

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
357	Conveyor Belt 1	TBD	TBD	TBD	TBD	132.28 tph	Yes
358	Dry Screen	TBD	TBD	TBD	TBD	132.28 tph	Yes
	Surge Hopper	TBD	TBD	TBD	TBD	TBD	Yes
359	Roll Crusher	TBD	TBD	TBD	TBD	126.77 tph	Yes
360	Conveyor Belt 2	TBD	TBD	TBD	TBD	126.77 tph	Yes
361	Conveyor Belt 3	TBD	TBD	TBD	TBD	126.77 tph	Yes
362	Wet Screen	TBD	TBD	TBD	TBD	126.77 tph	Yes
	Vertical Grinding Mill	TBD	TBD	TBD	TBD	125.66 tph	Yes
305	VLE Pilot Plant Laboratory Dust Collector	TBD	TBD	TBD	TBD	9,000 cfm	No
	Splitter 1	Gilson	SP-0	TBD	TBD	3.5 ft <sup>3</sup>	No
	Splitter 2	Gilson	SP-1	TBD	TBD	1 ft <sup>3</sup>	No
	Splitter 3	Gilson	SP-2	TBD	TBD	0.55 ft <sup>3</sup>	No
	Splitter 4	Gilson	SP-3	TBD	TBD	103 in <sup>3</sup>	No

Table C-20: Operation 016 - VLE Pilot Plant and Laboratory (operates during AOS II only)

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
305	Screen Tower (1" to ¼")	Gilson	TM-6	TBD	TBD	1" to ¼"	No
	Screen Tower (¼" to 35#)	Gilson	TM-6	TBD	TBD	¼" to 35#	No
	Ro-Tap 1 (Sieve Shaker)	WS Tyler	TBD	TBD	TBD	12" D	No
	Ro-Tap 2 (Sieve Shaker)	WS Tyler	TBD	TBD	TBD	12" D	No
	Ro-Tap 3 (Sieve Shaker)	WS Tyler	TBD	TBD	TBD	8" D	No
	Wet Screen	TBD	TBD	TBD	TBD	TBD	No

Table C-21 AOS 1 – Morenci Concentrator Crushing Operations

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
002-033	Fine Crushing Line A FFDC 2	Farr	GS48	N/A	2006	13,000 cfm	No
	Conveyor Belt 3	FMMI	652'L x 54"W	Custom Fabricated	1941	2,600 tph	No
002-034	Fine Crushing Line B FFDC 2	Farr	N/A	N/A	2006	12,000 cfm	No
	Conveyor Belt 3	FMMI	652'L x 54"W	Custom Fabricated	1941	2,600 tph	No
002-035	Fine Crushing Line C to 3B to 3 FFDC	Farr	GS24	212577	2006	13,300 dscfm	No
	Conveyor Belt 3B	FMMI	96'L x 54"W	Custom Fabricated	1941	1,300 tph	No
	Conveyor Belt 3	FMMI	652'L x 54"W	Custom Fabricated	1941	2,600 tph	No
002-036	Fine Crushing Line C to 3B to 3A FFDC	Farr	GS24	212578	2006	13,300 dscfm	No
	Conveyor Belt 3B	FMMI	96'L x 54"W	Custom Fabricated	1941	1,300 tph	No
	Conveyor Belt 3A	FMMI	440'L x 54"W	Custom Fabricated	1941	2,600 tph	No
002-326	Fine Crushing Line D FFDC 2	Farr	GS24	212574	2006	13,000 cfm	No
	Conveyor Belt 3A	FMMI	440'L x 54"W	Custom Fabricated	1941	2,600 tph	No
002-038	3/4/5 FFDC	Farr	GS36	N/A	2006	17,700 cfm	No

Table C-21 ACS I - Morenci Concentrator Crushing Operations

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
002-038	Conveyor Belt 3	FMMI	652'L x 54"W	Custom Fabricated	1941	2,600 tph	No
	Conveyor Belt 4	FMMI	147'L x 54"W	Custom Fabricated	1941	2,600 tph	No
	Conveyor Belt 5	FMMI	1,086'L x 54"W	Custom Fabricated	1941	2,600 tph	No
002-039	3A/4A/5A FFDC	Farr	GS36	N/A	2006	17,700 cfm	No
	Conveyor Belt 3A	FMMI	440'L x 54"W	Custom Fabricated	1941	2,600 tph	No
	Conveyor Belt 4A	FMMI	150'L x 54"W	Custom Fabricated	1941	2,600 tph	No
	Conveyor Belt 5A	FMMI	1,200'L x 54"W	Custom Fabricated	1941	2,600 tph	No
002-040	5A/FOSB FFDC 1	Farr	N/A	DC059-FO-10	2006	3,500 cfm	No
	5A/ FOSB FFDC 2	Farr	NA	DC059-FO-11	2006	3,500 cfm	No
	5A/ FOSB FFDC 3	Farr	NA	DC059-FO-12	2006	3,500 cfm	No
	5A/ FOSB FFDC 4	Farr	NA	DC059-FO-13	2006	3,500 cfm	No
	5A/ FOSB FFDC 5	Farr	NA	DC059-FO-14	2006	3,500 cfm	No
	5A/ FOSB FFDC 6	Farr	NA	DC059-FO-15	2006	3,500 cfm	No

Table C-21 AOS 1 – Morenci Concentrator Crushing Operations

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
002-040	5A/ FOSB FFDC 7	Farr	NA	DC059-FO-16	2006	3,500 cfm	No
	5A/ FOSB FFDC 8	Farr	NA	DC059-FO-16	2006	3,500 cfm	No
	5A/ FOSB FFDC 9	Farr	NA	DC059-FO-18	2006	3,500 cfm	No
	Conveyor Belt 5A	FMMI	1,200'L x 54"W	Custom Fabricated	1941	2,600 tph	No
	Fine Ore Storage Bin (FOSB)	TBD	TBD	TBD	TBD	TBD	No
003-084	Scrubber 3A	National Hydro-Filter	900	13D25003A	1974	42,000 dscfm	Yes
	Apron Feeders 2A1 and 2A2	Link-Belt	67'L x 48"W each	N/A	1974	467 tph each	No
	Apron Feeders 2A3 through 2A6	Link-Belt	67'L x 48"W each	N/A	1974	750 tph each	No
	Apron Feeders 2B1 and 2B2	Link-Belt	67'L x 48"W each	N/A	1974	467 tph each	No
	Apron Feeders 2B 3 through 2B6	Link-Belt	67'L x 48"W each	N/A	1974	750 tph each	No
	Conveyor Belt 3A2	FMMI	102'L x 54"W	Custom Fabricated	1974	1,500 tph	No
	Conveyor Belt 3A3	FMMI	102'L x 54"W	Custom Fabricated	1974	1,500 tph	No
	Conveyor Belt 3B2	FMMI	102'L x 54"W	Custom Fabricated	1974	1,500 tph	No

Table C-23 AOS 3 – Morenci Concentrator Molybdenum Flotation and Concentrate Processing Operations							
Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
002-245	Molybdenum Concentrate Hopper	TBD	TBD	TBD	TBD	TBD	No
	Molybdenum Concentrate Screw Conveyor	TBD	TBD	TBD	TBD	1.93 tph	No

Table C-24: AOS 4 – Scrubber Use Prior to the Operation of the Miscral Concentrator

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
001-018	IOS 1/R1A and R1B Wet Scrubber	W.W. Sly	Impinjet No. 185	7119	1988	27,700 dscfm	No
	Reclaim Feeder 1	NICO	FD4486	Custom Fabricated FD911	1988	2,000 tph	No
	Reclaim Feeder 2	NICO	FD4486	Custom Fabricated 253-FDA-201	1988	2,000 tph	No
	Reclaim Feeder 3	NICO	FD4486	Custom Fabricated 253-FDA-301	1988	2,000 tph	No
	Reclaim Feeder 4	NICO	FD4486	Custom Fabricated 253-FDA-401	1988	2,000 tph	No
	Reclaim Feeder 5	NICO	FD4486	Custom Fabricated 253-FDA-501	1988	2,400 tph	No
	Reclaim Feeder 6	NICO	FD4486	Custom Fabricated 253-FDA-601	1988	2,400 tph	No
	Reclaim Feeder 7	NICO	FD4486	Custom Fabricated 253-FDA-701	1988	2,400 tph	No
	Conveyor Belt R1A	FMMI	1,400'L x 60"W	Custom Fabricated	1988	5,600 tph	No
	Conveyor Belt R1B	FMMI	1,400'L x 60"W	Custom Fabricated	1988	5,600 tph	No
003-085	Scrubber 6 (Crushing Lines A and B)	Ducon	A-33C, No. 114	C-89-0948-3	1989	50,000 dscfm	Yes
	Conveyor Belt 4A	FMMI	645'L x 54"W	Custom Fabricated	1974	1,867 tph	No
	Scalping Screen A	W.S. Tyler	F-1608S-0	N/A	1995	1,867 tph	Yes

Table C-24: AQS 4 – Standard Use Prior to the Operation of the Metall. Concentrator

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
003-085	Secondary Crusher A	Nordberg	7' Extra Heavy Duty	35245962	1974	1,867 tph	No
	Secondary Screen A1	C.E. Tyler	F-900	N/A	1974	934 tph	No
	Secondary Screen A2	C.E. Tyler	F-1406-X	20350	1974	934 tph	No
	Conveyor Belt 4B	FMMI	645'L x 54"W	Custom Fabricated	1974	1,867 tph	No
	Scalping Screen B	W.S. Tyler	F-1608S-0	N/A	1995	1,867 tph	Yes
	Secondary Crusher B	Nordberg	7' Extra Heavy Duty	35245961	1974	1,867 tph	No
	Secondary Screen B1	C.E. Tyler	F-900	20737	1974	934 tph	No
	Secondary Screen B2	C.E. Tyler	F-1406-X	20353	1974	934 tph	No
	Conveyor Belt 7	FMMI	602'L x 60"W	Custom Fabricated	1974	1,867 tph	No
003-092	Conveyor Belt 8	FMMI	606'L x 60"W	Custom Fabricated	1974	1,867 tph	No
	Scrubber 1 (Crushing Line C)	Hydronics Enviro Corp.	Model A	D-3117-1	1995	23,700 dscfm	Yes
	Conveyor Belt 4C	FMMI	645'L x 54"W	Custom Fabricated	1995	1,867 tph	Yes
	Scalping Screen C	W.S. Tyler	F-1600	N/A	1995	1,867 tph	Yes

Table C-24 AOS 4-- Scrubber Use Prior to the Operation of the Mrealt Concentrator

Process Number	Equipment	Make	Model	Serial No.	Year of Manufacture	Design Capacity	NSPS Applicable
003-092	Secondary Crusher C	Nordberg	7' Extra Heavy Duty	7632	1995	1,867 tph	Yes
	Secondary Screen C1	W.S. Tyler	F-900	N/A	1995	934 tph	Yes
	Secondary Screen C2	W.S. Tyler	F-900	N/A	1995	934 tph	Yes
	Conveyor Belt 7	FMMI	602'L x 60"W	Custom Fabricated	1974	1,867 tph	No
	Conveyor Belt 8	FMMI	606'L x 60"W	Custom Fabricated	1974	1,867 tph	No
003-090	Scrubber 8	Ducon	A-33C, No. 78	C054887	2005	17,800 dscfm	No
	Conveyor Belt 5	FMMI	660'L x 60"W	Custom Fabricated	1974	5,600 tph	No
	Conveyor Belt 6	FMMI	1,292'L x 60"W	Custom Fabricated	1974	5,600 tph	No

Table C-25 Operation 024 Propane Fired Engines

Propane Number	Equipment	Make	Model	Serial No.	Date of Manufacture	Design Capacity	NSPS Applicable	NESHAP Applicable
367	Western King Site 1 Propane Emergency Generator	Generac	0052510 (GH-410)	4950968	11/1/2007	7 kW	No	No
368	Western King Site 2 Propane Emergency Generator	Cummins	GGHE-1207588	F 120356169	6/22/2012	60 kW	Yes	Yes
369	American Mountain Site 2 Propane Emergency Generator	Cummins	GGHE-1207560	F 120353966	6/21/2012	60 kW	Yes	Yes
370	Hoopes Hill Site 1 Propane Emergency Generator	Generac	0058831 (GT-530)	7892652	2/1/2013	10 kW	Yes	Yes
371	Hoopes Hill Site 2 Propane Emergency Generator	Cummins	GGHE-1207560	F 120353965	6/21/2012	60 kW	Yes	Yes
372	Silver Basin Site 2 Propane Emergency Generator	Cummins	GGHE-1207560	F 120353964	6/21/2012	60 kW	Yes	Yes
373	Flagpole Propane Emergency Generator	Generac	0062500 (GT-999)	8603892	12/1/2013	20 kW	Yes	Yes
374	Coronado Connex Propane Emergency Generator	Generac	0052510 (GH-410)	4939161	1/1/2008	7 kW	No	No
375	5300 Q-Point Propane Emergency Generator	Generac	0052510 (GH-410)	4916989	11/1/2007	7 kW	No	No
376	Metcalf Robot Shack Propane Emergency Generator	Generac	0052510 (GH-410)	4962877	3/1/2008	7 kW	No	No
377	Garfield Connex Propane Emergency Generator	Generac	0052510 (GH-410)	4936206	12/15/2007	7 kW	No	No
378	Shannon Shack Propane Emergency Generator	Generac	0052510 (GH-410)	4962812	3/1/2008	7 kW	No	No
379	King Water Tank Propane Emergency Generator	Generac	0055181 (GH-410)	5834467	3/2010	8 kW	No	No

Table C-26 Operation 022 Prill Bins

Process Number	Equipment	Make	Model	Serial Number	Year of Manufacture	Capacity	NSPS Applicable
393	Prill Bin 1	Unknown	Unknown	Unknown	1972	90 tons	No
	Prill Bin Vent 1	FMMI	Custom Fabricated	Custom Fabricated	TBD	TBD	No
	Prill Bin 2	Unknown	Unknown	Unknown	1972	90 tons	No
	Prill Bin Vent 2	FMMI	Custom Fabricated	Custom Fabricated	TBD	TBD	No
	Prill Bin 3	Unknown	Unknown	Unknown	1972	90 tons	No
	Prill Bin Vent 3	FMMI	Custom Fabricated	Custom Fabricated	TBD	TBD	No
	Prill Bin 4	Unknown	Bradley Metals	Unknown	2010	100 tons	No
	Prill Bin Vent 4	Unknown	Bradley Metals	Custom Fabricated	2010	TBD	No
	Prill Bin 5	Unknown	Bradley Metals	Unknown	2010	100 tons	No
	Prill Bin Vent 5	Unknown	Bradley Metals	Custom Fabricated	2010	TBD	No
	Prill Bin 6	Unknown	Bradley Metals	Unknown	2010	100 tons	No
	Prill Bin Vent 6	Unknown	Bradley Metals	Custom Fabricated	2010	TBD	No
	Prill Bin 7	Unknown	Bradley Metals	Unknown	2010	100 tons	No

Table C-26 Operation 022- Prill Bins							
Process Number	Equipment	Make	Model	Serial Number	Year of Manufacture	Capacity	NSPS Applicable
393	Prill Bin Vent 7	Unknown	Bradley Metals	Custom Fabricated	2010	TBD	No

**Technical Review and the Evaluation for  
Air Quality Minor Permit Revision Number 61578**

**I. INTRODUCTION**

This Class I Minor Permit Revision (MPR) is being issued to Freeport-McMoRan Morenci Inc., the Permittee, for the addition of three emergency engines and the addition of applicable regulations from A.A.C. R18-2-722 for portions of the Crushing & Screening plant in Operating Permit #57883. This MPR also corrects the formatting error in the Equipment List, Attachment "C" which occurred at the time of issuance of Minor Permit Revision #60254.

The addition of the three emergency engines results in an increase in the potential to emit of regulated air pollutants. The increases are below the respective significant thresholds identified in Arizona Administrative Code (A.A.C.) R 18-2-101(130).

This change meets all requirements for a minor revision in accordance with A.A.C. R18-2-319.A.

**II EMISSIONS**

The changes and corrections detailed above have an impact on the potential to emit from the facility. Facility wide emission before and after this MPR are provided in the Table below.

**FACILITY WIDE POTENTIAL TO  
EMIT**

Pollutant	Emissions, tons per year		
	Before	MPR	After
	#61578		
PM	205.89	0.14	206.03
PM <sub>10</sub>	174.88	0.14	175.02
PM <sub>2.5</sub>	158.83	0.14	158.97
CO	97.34	7.85	105.19
NO <sub>x</sub>	191.97	3.57	195.54
SO <sub>2</sub>	0.82	0.01	0.83
VOC	49.80	0.50	50.30

**III. PERIODIC MONITORING**

No changes in the frequency of periodic monitoring are occurring as part of this minor revision.

**IV. TESTING REQUIREMENTS**

No changes in the frequency of testing requirements are being made as part of this minor revision.

**V. MINOR REVISION GATEKEEPERS**

The Department has determined that this revision meets the requirements of a minor revision. Each minor revision trigger is listed below along with a discussion of why this revision meets those triggers.

1. Does not violate any applicable requirement;

This minor permit revision adds the applicable requirements of A.A.C. R18-2-722.

2. Do not involve substantive changes to existing monitoring, reporting, or recordkeeping requirements in the permit;

There are no changes to monitoring, reporting, or recordkeeping requirements as a result of the change.

3. Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination of ambient impacts, or a visibility or increment analysis;

The revision does not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination of ambient impacts, or a visibility or increment analysis.

4. Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed in order to avoid an applicable requirement to which the source would otherwise be subject. The terms and conditions include:

- a. A federally enforceable emission cap that the source would assume to avoid classification as a modification under any provision of Title I of the Act; and
- b. An alternative emission limit approved under regulations promulgated under the Section 112(i) (5) of the Act.

The revision does not establish or change a permit term or condition.

5. Are not modifications under any provision of Title I of the Act;

The increase in emissions due to the changes and corrections as detailed above is below the significant levels identified in A.A.C. R18-2-101(130) and therefore the project will not trigger PSD requirements and the changes are not modifications under any provision of Title I of the Act.

6. Are not changes in fuels not represented in the permit application or provided for in the permit;

There are no changes in fuels associated with this minor permit revision.

7. Are not minor NSR modifications subject to R18-2-334, except that minor NSR modifications subject to R18-2-334(G) may be processed as minor permit revisions; and

The increase in emissions due to the changes and corrections as detailed above is less than the permitting exemption thresholds identified in A.A.C. R18-2-101(99). Therefore, the changes are not considered a minor NSR modification.

8. Are not required to be processed as a significant revision under R18-2-320.

A.A.C. R18-2-320 does not require this revision to be processed as a significant revision.

